

Action A.4 Nature Visitor Guidance Plan Rkm 324,5 - 15

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Action A.4

Nature Visitor Guidance Plan

Rkm 324,5 - 15

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1 Summary

The current report is part of the "DRAVA LIFE - Integrated River Management" project, which is the first example of cross-sector cooperation and integrated management of Croatian rivers. It aims at an integrated implementation of various EU Directives (Water Framework Directive, Floods Directive, Habitats Directive and Birds Directive) to solve contemporary problems of river ecosystems using a synergistic approach. This project is a shift from river regulation to river restoration and is therefore an important showcase for Croatia and the Western Balkans. It is funded by the European Union and coordinated by Hrvatske vode (Croatian Waters – the Croatian water management authority). The current document is part of an action coordinated by WWF Austria: "Action A.4 Nature Visitor Guidance Plan".

Within the action an overall concept for the nature-friendly use of the Natura 2000 areas at the Drava with regard to sustainable tourism and recreation was developed. Considering the expansion of recreation at the Drava desired by the region, visitor guidance measures are inevitable to ensure a nature-friendly character of such development inside of an area soon to be recognized as a biosphere reserve. Impacts of development include disturbance of sensitive bird species of the river landscape such as white-tailed eagle or black stork or breeding birds of gravel and sand banks such as little and common tern or little ringed plover. But also bird migration along the Drava, which is important on a supraregional level, demands seasonally adapted concepts regarding the use of the area. Whereas the bordering Hungarian National Park Danube-Drava has established certain requirements for visitor management (e.g. for canoeing) there are no such restrictions or guidance on the Croatian side of the Drava in place so far. Cross-border cooperation and harmonisation is therefore needed. The focus of the concept lies on the main recreational uses: fishing, swimming, canoe/rafting, hiking/walking and cycling along the Drava within the counties of Varaždin, Međimurje, Koprivnica-Križevci, Virovitica Podravina, Osijek-Baranja. The habitat sensitivities identified as well as the appointed zones correspond to the current status and the desired development from the point of view of visitor and recreational use by respecting nature and wildlife at the same time. The present Visitor Guidance Plan does not stipulate any regulations but points out possibilities for a holistic, interdisciplinary alignment for the purpose of development in harmony with nature.

The Nature Visitor Guidance Plan was elaborated in a participative process with the involvement of project partners and several stakeholders from different sectors. The present strategic document including the jointly elaborated zonation map as well as indicative maps of the region (habitat sensitivity map, nature protection and usage related conflicts) are the result of this participative working process and represent the common opinion at the present time. The report serves as orientation support for further planning and is not to be considered a final document. Rather, it should be considered a living document, as its indications must be re-evaluated and adapted after a certain period. For this reason, the present document does not claim to be exhaustive.

2 Introduction

2.1 Initial position and aim of the Nature Visitor Guidance Plan

Visitor guidance measures are inevitable in the Natura 2000 sites along Drava River, considering the expected increase of visitors coming to the area. The touristic boom, which is strongly desired and supported by the region, has a big impact on the protected areas, especially on river birds that depend on intact, dynamic river landscapes with little disturbance. Characteristic sensitive birds of the region are the white-tailed eagle (Haliaeetus albicilla), the black stork (Ciconia nigra) and bird species that breed on gravel and sand banks such as the little tern (Sternula albifrons) and the common tern (Sterna hirundo). But bird migration along the Drava, which is important on a supra-regional level, demands seasonally adapted concepts for using the area as well. Whereas the Danube-Drava National Park has established certain requirements for management of different visitor/use categories (i.e. canoeing) that take into consideration species' sensitivities, such restrictions or guidance on the Croatian part of the Drava have not been defined so far. Areas protected within the Natura 2000 network in Croatia are managed by the nature protection institutions of the respective counties they are located in. Whereas cooperation among them does exist, this does not extend to regulative and management harmonization at the moment. Similarly, the Mura-Drava-Danube Transboundary Biosphere Reserve between Hungary and Croatia hasn't reached its potential in terms of alignment and harmonization up to this point. Thus there is an urgent need for a more intense inter-regional cooperation and alignment across counties in Croatia as well cross-border cooperation and alignment of visitor guidance measures to ensure coherent protection measures on this large, connected natural treasure which is an intertwined transboundary area.

The goals of the present LIFE Project's Nature Visitor Guidance Plan are

- to harmonize existing recreational or touristic uses
- with the needs of nature and nature conservation concepts
- to reduce existing conflicts and
- > to create benefits for both visitors and nature conservation.

2.2 Project area

The project area is part of the Transboundary Biosphere Reserve Mura-Drava-Danube (TBR MDD). Croatia, Hungary, Slovenia, Serbia and Austria have agreed to establish a 5-country biosphere reserve according to the Man and Biosphere (MAB) programme of the UNESCO within the next years. As the name indicates, the Biosphere Reserve will stretch along the rivers Mura, Drava and Danube across these five countries and focus on protection of large-scale ecosystems and landscapes with their biological diversity (see figure below).

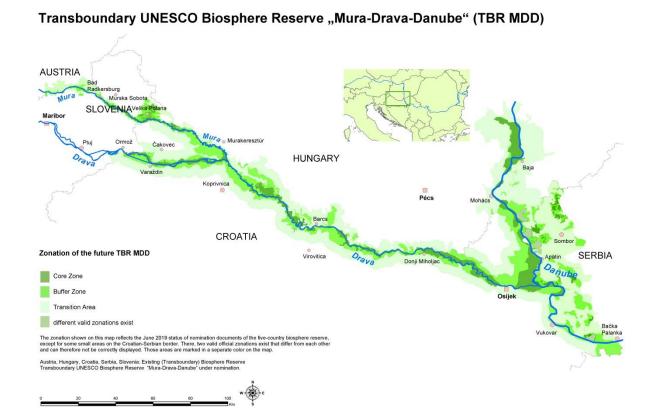


Figure 2-1: Overview of the Future Transboundary UNESCO Biosphere Reserve "Mura-Drava-Danube" (TBR MDD)¹

The project area covers the Natura 2000-areas along the Croatian Drava, including a buffer zone of 100 m (see figure below). The surface area is approximately 756 km².

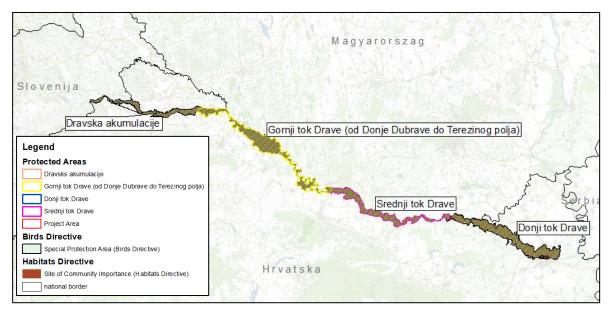


Figure 2-2: Overview of the Croatian Natura 2000 areas within the project area

¹ Guidelines for a dynamic river corridor (2018): Project coop MDD DTP1-259-2.3, Editor: WWF Austria

The Natura 2000-areas along the Drava between rkm 322,8 at Dubrava Križovljanska and rkm 15 at Osijek in Croatia are:

- Drava akumulacije (SPA HR1000013, SAC/SCI HR2001307)
- Gornji tok Drave (od Donje Dubrave do Terezinog polja) (SPA HR1000014, SAC/SCI HR5000014)
- Srednji tok Drave (od Terezinog polja do Donjeg Miholjca) (SPA HR1000015, SAC/SCI HR5000015)
- Donji tok Drave (SPA HR1000016 (western part of the larger area Podunavlje donje Podravlje), SAC/SCI HR2001308)

Parts of the following Hungarian Natura 2000 areas are also located within the project area. They have been taken into consideration in the elaboration process of the current Nature Visitor Guidance Plan and actions.

- Zákány-őrtilosi dombok (SPA HUDD20055, SAC/SCI/pSCI)
- Nyugat-Dráva (SPA HUDD20054, SAC/SCI/pSCI)
- Nyugat-Dráva-sík (SPA HUDD20062, SAC/SCI/pSCI)
- Közép-Dráva (SPA HUDD20056, SAC/SCI/pSCI)
- Darányi borókás (SPA HUDD20051, SAC/SCI/pSCI)
- Kelet-Dráva (SPA HUDD20007, SAC/SCI/pSCI)

Parts of the following Slovenian Natura 2000 areas are located within the project area as well and have also been taken into consideration in the creation of the current Nature Visitor Guidance Plan and its actions.

- Drava (SI 3000220, SAC/SCI/pSCI/SPA)
- Drava (SI 5000011, SAC/SCI/pSCI/SPA)

2.3 Development process

Within the process, different stakeholders from the region and responsible institutions had been brought together at a total of three workshops and given the chance for intensive discussion on the Nature Visitor Guidance plan. Selection of the method chosen for the joint elaboration of the visitor guidance plan and of workshop participants was made keeping in mind the goal of involving all relevant stakeholders for a nature-based and nature-focused visitor guidance as well as inclusion of those authorities that were aimed to work after completion with these documents. The method took into consideration the theory regarding tourism development in biosphere reserves (Schneider-Jacoby, Mohl, 2012): Tourism development in biosphere reserves must respect the biosphere zonation, i.e. core zones (strict protection), buffer zone (protected and managed landscape) and transition zone (open to a regional sustainable development). With the core zone of the planned TBR MDD centered along the three rivers, including therefore the Drava in Croatia, tourism *on the river* has been considered important. However, according to the ecological sensitivity of the zone, this type of tourism must be strictly regulated to protect rare plants and allow retreat of animals, such as bird

species that breed along specific river habitats. The river itself, almost in its entirety part of the core zone, must not become the main tourism axis. Conversely, the notion of *tourism at the river* implies that the villages along the Drava must all, as part of their identity and heritage, keep their "place at the river", i.e. an entrance to the virgin landscape. Definition of zones that allow for activities such as angling, swimming and nature observation is necessary. "*Tourism along the river*" is a more general and mass tourism oriented notion. It implies guidance for larger numbers of guests and involves e.g. common means of transport, joint presentation of the cultural and natural heritage of the region or a marketing platform for regional specialties. The present visitor guidance plan was elaborated keeping in mind the first two types of tourism and the method of its elaboration involved zonation following these principles as well as recommendation for certain measures that help reach the aims of specific zones within biosphere reserves.

The following process took place for elaborating the Visitor Guidance Plan:

 1st workshop (November 7th, 2017, Kopačevo Visitor Centre of the Nature Park Kopački Rit, Croatia)

The first workshop was addressed to persons who are connected or work in the field of nature protection, visitor guidance and tourism within the Natura 2000 sites along the Drava in Croatia. In the beginning of the half-day workshop the DRAVA LIFE project and the methodological approach of the Nature Visitor Guidance Plan were presented. Afterwards the existing ecological sensitivity and recreational uses along the Drava were discussed in small groups, using maps to locate important points of such use.

1st Draft version of Nature Visitor Guidance Plan

Based on the output of the 1st workshop the first draft of the Visitor Guidance Plan was compiled. An initial, draft zonation was suggested to work on during the second workshop.

 2nd workshop (April 9th and 10th, 2018, Informative and Educational Centre "The Drava Story", Noskovačka Dubrava, Croatia)

The second workshop addressed mostly the same groups of stakeholders as the first one, with an additional attempt to open towards regional development agencies and the neighbouring Hungarian protected areas' management. The goal was the definition and localization of future nature and visitor zones based on the results of the first workshop. First suggestions concerning measures within those zones were made.

2nd Draft version of Nature Visitor Guidance Plan

Based on the output of the 2^{nd} workshop the 2^{nd} draft of the Nature Visitor Guidance Plan was compiled.

■ **3**rd **workshop** (November 20th, 2018, Public Institution Međimurje, Križovec, Croatia)

The 3rd workshop addressed the same group of stakeholders as the previous two workshops; additionally contributions from the bordering Hungarian protected areas' management have been received. The goal was to finalise the definition, localization and possible measures of future nature and visitor zones based on the results of the previous workshops and to clarify all potential open points in order to finalize the Visitor Guidance Plan and its suggested zonation of the area.

Final version of Nature Visitor Guidance Plan

Based on the output of the workshops and feedback round, the final version of the Nature Visitor Guidance Plan has been compiled.

The present report is the result of the working process of the partners and stakeholders involved, and represents the common opinion at the present time. The report serves to offer orientation for further planning and is not a final document. Rather, it should be considered a living document, as it must be evaluated and adapted after a longer period. For this reason, the present document does not claim to be exhaustive.

3 Method

The development of the present Nature Visitor Guidance Plan is based on six main steps as listed below. Due to the focus exclusively on the zonation of the project area for the purpose of visitor guidance, measures planned for other uses, management plans for forestry, fisheries, or spatial plans etc. have not been considered. Considering the restricted scope and strategic level of the present plan as well as the large geographic area, such plans were not included in this early step of the elaboration process. The concrete implementation of zones, further detailing of measures and facilities as well as the adaption or coordination with existing plans are working steps of a next planning phase, in responsibility of local stakeholders.

- 1. Analysis of existing ecological sensitivity
- 2. Analysis of existing disturbances
- 3. Identification of conflicts between disturbances and nature/wildlife
- 4. Identification existing visitor hot spots
- 5. Definition of nature and visitor zones
- 6. Definition of general recommendations

3.1 Analysis of existing ecological sensitivity

The ecological sensitivity level was defined based on a set of criteria such as biotope types (habitat types) and the presence of certain bird species of interest.

Biotope types

The habitat types present within the project area² were classified in different levels of ecological sensitivity (none - low - middle - high – very high), whereas sensitivity is composed of the sensitivity of a habitat type to anthropogenic disturbance and its importance from a nature conservation perspective. The sensitivity of the present habitat types was classified in a first step and then discussed during the first workshop. Based on this discussion the level of sensitivity of habitat types has been adjusted where considered necessary.

The levels of ecological sensitivity defined in the classification are shown in the table below.

Table 1: Categories sensitivity level

Level of sensitivity

Description

Very high ecological sensitivity (one or more applicable):

Unaffected by anthropogenic influences and/ or very extensively used habitat

Rare habitat for protected or endangered species of flora and fauna

Strongly endangered and rare habitat/ biotope type

Very high functional importance of area/ landscape element for migration,

² Based on the Drava Map: Schwarz, U. (2017): DRAVA Map. LIFE-Project "DRAVA LIFE – Integrated River Management" Action A.2 LIFE Drava Map. FLUVIUS, Vienna. 115p. This approach groups some of the habitat types categorized separately within the EUNIS classification, when their features and species are very similar.

	network (stepping stone areas or biodiversity corridors)
	Examples: unspoilt banks, natural forests, wetlands
	High ecological sensitivity (one or more applicable):
	 Almost unaffected by anthropogenic influences and/ or extensively used habitat
high	 Habitat for protected or endangered species of flora and fauna
	 Endangered and rare habitat/ biotope type
	 High functional importance of area/ landscape element for migration, net- work (stepping stone)
	Examples: unspoilt banks, natural forests
	Medium ecological sensitivity (one or more applicable):
	 Affected by anthropogenic influences and/ or used habitat
	 Widespread and moderately common habitat for species of flora and fauna
medium	 Not or moderately endangered habitat/ biotope type
	 Medium functional importance of area/ landscape element for migration, network (stepping stone)
	Examples: near-natural banks, used forests
	Low ecological sensitivity (one or more applicable):
	 Manmade, not natural and/ or intensively used habitat
	 Common habitat for species of flora and fauna
low	 Not endangered habitat/ biotope type
	 Low functional importance of area/ landscape element for migration, net- work (stepping stone)
	Examples: embankment constructions, intensively used forests
	No ecological sensitivity (one or more applicable):
	 No suitable habitat for species of flora and fauna
none	 No functional importance of area/ landscape element for migration, network (stepping stone)
	 No or insignificant functional importance of area/ landscape element for mi- gration, network (stepping stone)
	Examples: artificial structures (roads, railways, etc.)

<u>Birds</u>

The presence of known breeding areas of bird species with a high value for nature conservation has been taken into consideration within the analysis of existing ecological sensitivity as well. Within a defined buffer³ around the breeding place the ecological sensitivity "very high" has been identified (also see Table 6).

³ Definition of buffer areas based on expert knowledge and scientific literature (e.g. BirdLife Österreich (n.k.): Horstschutz – ein Leitfaden. Bierbaumer, M.; Edelbacher, K. (2010): Horstschutzzonen für gefährdete Greifvögel – Eine Zusammenstellung der Mindestanforderungen samt Abschätzung der Kosten am Beispiel ausgewählter, baumbrütender Greifvogelarten. Wien.) including a safety buffer of 200 m.

3.2 Analysis of existing disturbances

The disturbances present in an area are identified and analysed on two levels:

- 1. Disturbances caused by infrastructure and settlements
- 2. Disturbances caused by recreational uses

For the first level data from the OpenStreetMap and CORINE Land Cover was used to identify existing impacts of infrastructures, settlements and recreational uses on the surroundings. Depending on their basic characteristics (size, frequency of use, possible noise pollution, etc.) the grade of impact of the analysed infrastructure and settlements has been classified according to the following table:

Table 2: Level of disturbance - places

Name	Level of disturbance
No settlements in the area	none
city (1200 m); town (800 m); village, hamlet (400 m)	low
city (600 m); town (400 m); village, hamlet (200 m)	medium
city (300 m); town (200 m); village, hamlet (100 m)	high

Table 3: Level of disturbance - infrastructure

Name	Level of disturbance
No infrastructure in the area	none
Highway (1000 m), main road (1000 m), road (500), municipal road (500 m), railways (500 m), others (500 m)	low
Highway (500 m), main road (500 m), road (250 m), municipal road (250 m), railways (250 m), others (250 m)	medium
Highway (250 m), main road (250 m), road (100 m), municipal road (100 m), railways (100 m), others (100 m)	high

For the second level (Disturbances caused by recreational uses) input received during the first workshop was used to classify uses into different categories (point, line, area) and to identify so-called "hot spots" of intensively used areas. Their list has been extended by adding points of interest from the OpenStreetMap, which are related to recreational use (e.g. picnic sites, viewpoints, slipways etc.). These have been added to the map of the zonation (see point 3.4. below).

3.3 Identify conflicts between disturbances and wildlife

Combining the information on ecological sensitivity (see chapter 3.1) with that on intensity of disturbance (see chapter 3.2) made possible the identification of existing conflicts of a different level (low, medium, high) between nature/ wildlife and disturbances. The way the ecological sensitivity and the intensity of disturbance were combined is shown in the matrix below. High disturbance in an area of high sensitivity, e.g. existence of a road around a sensitive bird species' preferred breeding spot yields high conflict. On the other hand, existence of a road (high disturbance) in an area with no ecological sensitivity (e.g. a village or a city) does not yield any conflict.

Table 4: Matrix to classify the level of conflict by combining the ecological sensitivity and the level of disturbance.

Conflict		Ecological sensitivity				
		none	low	medium	high	very high
e	none					
Disturbance	low					
turb	medium					
Dist	high					

Level of conflict	none	low	medium	high	very high
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The defined "hot spots" (disturbances caused by recreational uses) are evaluated separately if they lead to an additional conflict or intensify an existing conflict.

3.4 Identify existing visitor's hot spots

Based on data from the OpenStreetMap and detailed inputs received at the workshops from stake-holders regarding the areas they were familiar with, touristic or recreational infrastructures and uses have been identified. They have been divided into the types "point", "line" and "area" and were taken into consideration during the zonation process for the assessment whether definition of nature or visitor zone was necessary.

3.5 Define nature and visitor zones

For the identified conflicts (see chapter 3.3) visitor zones, nature zones and possible measures for visitor steering have been developed that help reach the goals set for both types of zones. The development was based on suggestions and their discussion within the workshops followed by feedback rounds to the present report.

The Visitor Guidance Plan aims to steer visitors to certain spots where recreational uses take place or recreational infrastructure (e.g. picnic sites, swimming areas, roads, etc.) exist in the present. Steering effect can be reached on the one hand by increasing the attractivity of those spots for visitors e.g. through building of new facilities or by offering additional attractions and information, etc. On the other hand, nature zones can be made less attractive for visitors e.g. by keeping them disconnected from roads or villages and avoiding to establish any visitor facilities, etc.).

The zoning follows three basic principles, as listed below:

- large area with high or very high sensitivity and no or only few recreational uses; no or only few conflicts → assignment as nature zone, no acute need for further measures identified ("keep status quo")
- 2. large area with high or very high sensitivity and no or only few recreational uses;, several high or very high conflicts → assignment as nature zone, need for measures identified
- 3. areas with several recreational uses, no or only few habitats with high or very high sensitivity → assignment as visitor zone; potential need for measures identified

In special cases it is possible to deviate from this approach and the assessment of whether a visitor or nature zone was defined was based on a case by case assessment and/or in order to follow a particular aim for an area, in alignment with the involved stakeholders.

It must be pointed out that all areas included into the present nature visitor guidance plan's zonation are also part of the (planned) Five-country Transboundary Biosphere Reserve Mura-Drava-Danube⁴ (TBR MDD) and, as such, must follow the UNESCO MAB's recommendations regarding purposes of zonation (see also chapter 2.2).⁵

The defined nature and visitor zones follow the principles listed previously and happens based on a list of criteria. Their definition targets different aims with regards to nature protection and/or guidance of visitors. Within the two different types of zones, measures and concrete actions can be planned and implemented, with the aim to reach the goals of the nature or visitor zone.

Nature zones:

Criteria for assignment of nature zones

- High or very high ecological sensitivity
- River or close to the river
- Valuable riverine habitats (islands, sand/ gravel banks, floodplain forests, ...)
- No or few conflicts (few uses and/or disturbances)

Aims:

- Increase in or preservation of the degree of naturalness
- Existing disturbance of nature and wildlife caused by people is reduced to a minimum
- Support of the biodiversity, of nature and wildlife
- Protection of specific (protected or important) species
- Contribution towards fulfilling aims of the Natura 2000 network and of the TBR MDD

Possible actions:

Prepare detailed planning and define measures and actions

- Improve habitat quality (ecological measures, restoration measures)
- Consider proposed zonation for implementation in spatial plans

⁴ Guidelines for a dynamic river corridor (2018): Project coop MDD DTP1-1-259-2.3, Editor: WWF Austria

⁵ UNESCO Mab defines three zones: core, buffer, economic, with specific functions for each of these.

- Involve stakeholders (nature conservation, touristic sector, spatial planning, land owners, etc.)
- Extensify uses (forestry, agriculture) or preserve current intensity of use
- Remove existing disturbances (reduce the amount of roads, close roads, ...)
- Raise awareness of visitors
- · ...

Visitor zones:

Criteria for assignment of visitor zones:

- Existing uses in specific area (swimming, canoeing/kayaking, fishing,...)
- Existing infrastructure (roads, huts, boat docks, ...)
- Existing "touristic" infrastructure (cycling paths, watch towers, visitor centres, barbecue places ...)
- Proximity to villages, cities
- Connection to the planned Amazon of Europe Bike Trail and other existing trails

Aims:

- Existing recreational infrastructure is bundled up and improved
- Recreational infrastructure is or can be planned without entering into conflict with nature protection goals
- Visitors are steered away from sensitive nature areas
- Visitors are informed of Natura 2000 and aware of the needs of nature and wildlife
- Contribute towards fulfilling aims of the Natura 2000 network and of the TBR MDD

Possible actions:

- Prepare detailed plans and define measures and actions
- Consider proposed zonation for implementation in spatial plans
- Stakeholder involvement (nature conservation, tourism sector, spatial planning, land owners, etc.)
- Improve existing facilities (fire places, boat docks, paths, roads,...)
- Build new facilities (parking places, cafes, toilets,...)
- Inform visitors (information centres, educational paths, information boards, watch towers, ...)
- **.**..

3.6 Define general recommendations

A set of general recommendations have been formulated keeping in mind the aims of a natureoriented visitor guidance plan and the underlying principles of an area that is integral part of a large biosphere reserve. The recommendations are the result of the three workshops and feedback process and have been included in the present plan in an effort to formulate basic principles that should lead to a joint, harmonised visitor guidance strategy on a trans-boundary, biosphere reserve level.

The recommendations have been formulated for all zones (nature and visitor zones) and include general provisions that have been defined for various recreational activities that can take place in and around the river, i.e. in the project area the present plan focuses on.

4 Analysis of current situation

This chapter describes the ecological sensitivity, recreational uses and conflicts between those two themes within the project area.

4.1 Ecological sensitivity

The ecological sensitivity of a particular area is defined, as described above, by the biotope types present as well as the presence of nesting or resting places for bird species of interest.

Biotope types - level of sensitivity

Table 5: Sensitivity of the habitat types within the project area. The names of the habitat types are based on the European EUNIS habitat classification and the Drava Map^6

Habitat type	Sensitivity
C3v (C3.2/C3.431/C3.53) Littoral zone of inland surface waterbodies	very high
C1.32/1.34 Free-floating and rooted floating vegetation of eutrophic waterbodies	very high
C3.61 Unvegetated river sand banks	very high
C3.62 Unvegetated river gravel banks	very high
C3.63 Unvegetated river mud banks	very high
C1.2 Permanent mesotrophic lakes, ponds and pools	high
C2.3 Permanent non-tidal, smooth-flowing watercourses	high
C3.3 Water-fringing beds of tall canes	high
E1 Dry grasslands	high
G1.1 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix	high
G1.2 Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus- Quercus – Ulmus)	high
G1.A Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland	high
C1.3 Permanent eutrophic lakes, ponds and pools	medium
E2 Mesic grasslands	medium
E3.4 Moist or wet eutrophic and mesotrophic grassland	medium
G1.D Fruit and nut tree orchards	medium
E5 Clear cut	low
G1.C1 Populus plantations	low
G1.C4 Other broadleaved deciduous plantations (alder, willow)	low
I1.2 Mixed crops of market gardens and horticulture	low
I1.3 Arable land with unmixed crops grown by low-intensity agricultural methods	low
I1.5 Bare tilled, fallow or recently abandoned arable land	low
J5 Highly artificial man-made waters and associated structures	low
G3.F Highly artificial coniferous plantations	none
I1.1 Intensive unmixed crops	none
J1.1 Residential buildings of city and town centers	none
J1.2 Residential buildings of villages and urban peripheries	none

⁶ Schwarz, U. (2017): DRAVA Map. LIFE-Project "DRAVA LIFE – Integrated River Management" Action A.2 LIFE Drava Map. FLUVIUS, Vienna. 115p.

J1.4 Urban and suburban industrial and commercial sites still in active use	none
J3.2 Active opencast mineral extraction sites, including quarries	none
J3.3 Recently abandoned above-ground spaces of extractive industrial sites	
J4.2 Road networks	none
J4.3 Rail networks	none

Birds - level of sensitivity

Table 6: Sensitivity of birds within the project area⁷.

Name	Buffer around breeding place (m)	Level of sensitivity
Common sandpiper (Actitis hypoleucos)	100	very high
Kingfisher (Alcedo atthis)	100	very high
Little ringed plover (Charadrius dubius)	100	very high
Black stork (Ciconia nigra)	500 ⁸	very high
White tailed sea eagle (Haliaeetus albicilla)	500 ⁹	very high
European bee-eater (<i>Merops apiaster</i>)	100	very high
Sand Martin (<i>Riparia riparia</i>)	100	very high
Little Tern (Sterna albifrons)	100	very high
Common Tern (Sterna hirundo)	100	very high
Heron colony / mixed heron colony	400	very high

4.2 Recreational uses

Within the project area a set of recreational uses have been identified and several touristic facilities have been localized. The area offers space or is used for swimming, angling, fishing, canoeing, kayaking, rafting, cycling, jogging, hiking, kite surfing, riding motorbikes and quads, etc. Several recreational facilities as well as informal recreational sites known to local stakeholders exist, e.g. camp and picnic sites, weekend and fishing huts, boat docks, slip ways, ferry terminals, viewpoints and watchtowers (birdwatch-towers and other), educational paths, information boards, marked cycling routes, accommodation, restaurants, etc.

⁷ Source of data on nesting birds: Ivan Darko Grlica

 $^{^{8}}$ Core zone 300 m, buffer zone 200 m

⁹ Core zone 300 m, buffer zone 200 m

4.3 Conflicts between recreational uses and wildlife

Based on an analysis of the available data, conflicts result from the short distances between villages, cities or roads and sensitive biotope types or nesting places of important bird species (see chapter 3.1). This can cause disturbances due to noise, pollution, the presence of humans, etc. Roads and their use additionally build barriers between habitats or cut habitat connectivity.

5 Zones

In the following chapters each nature and visitor zone within the project area is described, including suggestions of possible measures of visitor guidance. The criteria "Ecological sensitivity" only shows habitat types with medium, high or very high sensitivity, because those are the most relevant habitat types to protect. Based on the described methodology and as a result of the workshop 30 nature zones and 30 visitor zones have been identified. The zone-specific descriptions and measure recommendations are preceded by the set of general recommendations defined for the identified recreational uses and activities that exist in the project area. These are a first attempt to suggest certain principles to be respected in elaboration of visitor management plans individually or as part of protected areas and/or approval of new recreational sites if a joint, biosphere-reserve level approach to visitor guidance is desired.

The defined zones are recommended to be taken into consideration as basis for further and more detailed planning. Suggested examples are anchoring of the zonation in spatial plans as well as Natura 2000 management plans, on a case by case and site-specific detail level of the nature and visitor zones. Therefore it has to be noted that the given zonation and suggested measures could be adjusted in a next and more concrete planning step, such as elaboration of Natura 2000 management plans, visitor management plans for protected areas and/or regional development plans.

The habitat sensitivities identified as well as the appointed zones corespond to the current status and a desired development from the point of view of visitor and recreational use by respecting nature and wildlife at the same time. The zonation as well as the measures proposed for each zone refer, without exception, to the use of the area by visitors.

5.1 General recommendations

Existing illegal huts and small illegal facilities in Natura 2000 areas

Existing illegal buildings within Natura 2000 areas will be treated according to the Croatian
Act on proceeding with illegally built buildings (OG 86/2012, 143/2013, 65/2017) ("Zakon o
postupanju sa nezakonito izgrađenim zgradama").

Illegal fishing

Improve enforcement of law to avoid illegal fishing along the river.

Planning and building new Infrastructure

- Before building new infrastructure check the demand and possibilities for maintenance in a first step to avoid building of redundant infrastructures that are not used and are likely to break down due to a lack of maintenance.
- Strive to follow joint branding and visual identity set up and followed by regional management authorities in order to avoid a lack of harmony and aesthetically unpleasing solutions for infrastructure.

 Elaborate a concept guide for adding new infrastructure (e.g. minimum distance between two watchtowers) and maintenance or removal, when no refurbishment possible, of old infrastructure.

Camping

- Entrust a central, inter-regional authority to issue licenses for new camping sites or restrictions, etc.
- Camping areas' development relies on existing spots for such uses, existing infrastructure or is restricted to locations that are of a low ecological sensitivity and value.
- Newly planned or refurbished areas include a waste management concept (waste collection and recycling).
- Conservation experts are consulted within the authorization process to ensure low disturbance of species of interest that potentially use the respective area.
- A harmonised set of information about camping on gravel and sand bars is included in all protected areas and tourism information materials (e.g. where and when camping is permitted).
- Information regarding specific species of interest is shared with visitors of such areas to ensure non-disturbance.
- Seasonal and territorial restrictions are legally anchored.

Picnic, Barbecue

- Picnic and barbecue areas` development relies on existing spots for such uses, existing infrastructure or restricted to locations that are of a lower ecologic sensitivity and value in both nature and visitor zones.
- Newly planned or refurbished areas include a waste management concept.
- Conservation experts must be consulted as part of the authorization process to ensure low disturbance of species of interest that potentially use the respective area.
- A set of harmonised information regarding species of interest is shared with visitors of such areas to ensure non-disturbance.

Swimming

- Commonly used swimming areas and those with facilities and infrastructure for visitors ensure sharing of information about
 - specific species of interest and their habitats and
 - legally binding seasonal restrictions for entering gravel and sand bars (aligned with neighbouring areas in Hungary).
- Information about proper handling of encounters with specific protected animal or plant species or breeding sites or resting places of any kind as well as seasonal restrictions on specific habitat types is shared (brochures, information boards around popular swimming areas and camping sites with swimming areas, maps, etc.).

- Consider possibilities of sanitation facilities and their maintenance around official swimming areas.
- Infrastructure without protected area management's authorization not to be allowed.

Infrastructure - Cycling, Bike Routes

- Removal of vegetation within the protected areas is avoided. If infrastructure development is required, investments for touristic and infrastructure relies mostly on existing infrastructure to avoid additional effect on nature.
- Planned or refurbished cycling paths and bike routes as well as other mobility-related infrastructure rely on existing roads, paths and dykes as opposed to construction of new roads in order to avoid sealing surfaces and destruction of habitats and vegetation.
- Primarily plan infrastructure related to cycling routes such as info points, resting points and sanitation facilities adjacent to other existing facilities.
- Elaborate and follow a joint, harmonized branding inter-regionally to avoid a lack of harmony and aesthetically unsatisfactory solutions for infrastructure.
- It should be avoided to lead the Amazon of Europe Bike Trail through the nature zone's connected or connectable areas with "high" and "very high" sensitivity. Exceptions can be considered for existing paths/roads that are already suitable for biking (e.g. in Kopački Rit, or Varaždin area, etc.) or, for Amazon of Europe bike-trail stop-overs planned within such areas, if these are accessible via already existing and frequently used paths/roads suitable for biking. However, in order to allow for nature experience, the trail may lead adjacent to sensitive areas along existing infrastructure such as dikes. In any case, the establishment of bike trail sections within nature zones should not contradict nature conservation goals.

Bird watching, nature tours, info points and education paths

- Elaborate and follow a joint, harmonized branding inter-regionally to avoid a lack of harmony and aesthetically unsatisfactory solutions for infrastructure.
- Info points to be built in locations that ensure that key habitats and species will not be disturbed by visitors.
- Bird watching towers to be built in a non-disturbing distance from key breeding areas for species of interest.
- The choice for placing info points and bird watching towers is primarily based on existence of other facilities on and around the location.
- Education paths and nature tours to use existing paths to avoid additional sealing of natural surfaces.
- A harmonised set of rules of behaviour specific to certain protected areas to be part of infrastructure and guidance materials (information boards, flyer, leaflet, web) - for every zone.
- Use sustainable materials (to fit into nature, natural materials) for building bird watching towers, info points and paths.

 Nature tours should be agreed with nature protection authorities, limited to certain number of visitors over a defined period and arranged in advance.

Hiking, horseback riding

- Marked hiking and walking paths are planned and established on existing routes and paths to avoid disturbance of wildlife and destruction of vegetation.
- Information material regarding hiking such as hiking maps, guidebooks and brochures contain information regarding proper handling of encounters with specific animal or plant species and their breeding sites of any kind, as well as seasonal restrictions on specific habitat types.
- Plan resting areas for horses in line with existing infrastructure, water accessibility, etc.
- Hiking and horseback riding trails to be agreed with management authorities (not only nature, forests, etc.).

Water sports, kayak/ canoe/ paddling / rafts

- Water sports equipment rental partners should be obliged to hold specific permits/ concessions, which are checked by rangers (including a system of warnings and fees).
- Limit on total number of kayaks/canoes available for rent / centralize licensing authority for such companies with one agency/institution.
- Motor boat permit limits/centralized licensing authority for motor boats.
- Certain areas of very high ecological value (bird breeding sites, sand and gravel bars, etc.) are avoided by water sports and routing. Such restrictions can be all-year round or seasonal, depending on the specificity of an area. They are marked accordingly in all related maps and guiding materials including an explanation and instruction not to enter those areas (define "no-go areas" and seasons (e.g. breeding season)).
- Water sports equipment rental partners include such information in all their materials; own guide books, maps and flyers are aligned with the protected area management authorities.
- Information material regarding water sports such as kayak/canoe maps and guidebooks or brochures contain information regarding proper handling of encounters with specific endangered animal or plant species or nesting and resting sites, as well as seasonal restrictions for entering specific habitat types.
- Support/ promote water sports like kayak, canoe, paddling, rafts, etc. as modes of travelling on the river in accordance with nature protection needs.

Sport fishing

 Information material regarding fishing spots, rules and maps, as well as fishing organizations own brochures and other information materials contain information regarding proper handling of encounters with specific endangered animal or plant species or nesting and resting sites of any kind as well as seasonal restrictions on specific habitat types (gravel and sand bars, islands).

- Seasonal fishing restrictions adapted to include prohibition on motor boat docking and/or fishing on gravel and sand bars during bird breeding season.
- Information about fish and bird species of interest to be shared along with the fishing authorization or daily passes.

Motor sports

- Seasonal restrictions implemented close to breeding and spawning areas of important species.
- 2-wheel and 4-wheel motorized vehicles access on gravel and sand banks as well as in wetland forests to be restricted (exception: forestry use).
- Offer alternative ground for vehicles.

5.2 Nature zones

Nature zone (n1)



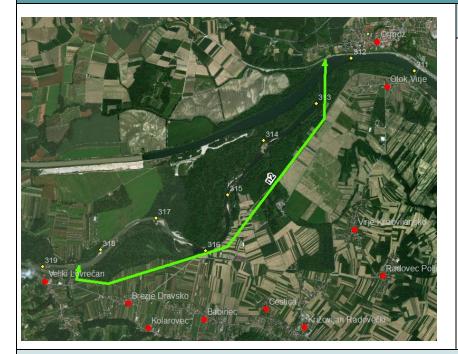
Location

- County: Varaždin
- Between rkm 321,8 318,5
- Between Dubrava Križovljanska and Veliki Lovrečan

Ecological sensitivity	Description
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent mesotrophic lakes, ponds and pools
	- Littoral zone of inland surface waterbodies
	- Unvegetated river gravel banks
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
Traditat types	- Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland
	 Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus- Quercus – Ulmus*
	- Mesic grasslands
	- Moist or wet eutrophic and mesotrophic grassland
	- Common sandpiper (Actitis hypoleucos)
Diada	- Little ringed plover (Charadrius dubius)
Birds	- Black stork (Ciconia nigra)
	- Kingfisher (Alcedo atthis)
Recreational and other uses	
Leisure facilities	- None
Other uses	- None
Existing conflicts	

Nature zone (n1)				
Identified conflicts	- Disturbances due to short distance to villages and roads as well as entry point to a fishing club			
Suggested measures				
Measures	Description			
Ecological measures	 Actions against invasive species Support/improve habitat of sand martin Remove deponies of building materials Stop illegal gravel extraction Reduce plantations Plant native forest 			
Stakeholder involvement	 Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations, etc. Awareness raising for agriculture concerning deposition of pesticides and nutrients related packaging and waste 			
Project Action C.1	 Side arm restoration and riverbed widening "Otok Virje" (rkm 312 – 314,3; orographic right river bank) The planned opening and widening of an existing oxbow should improve river dynamics in this nature zone section of the river. 			

Nature zone (n2)



Location

- County: Varaždin
- Between rkm 318,5 313, btw. Veliki Lovrečan and Ormož

Ecological sensitivity	Description
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent mesotrophic lakes, ponds and pools
	- Littoral zone of inland surface waterbodies
	- Unvegetated river gravel banks
	- Unvegetated river sand banks
	- Unvegetated river mud banks
	- Water-fringing beds of tall canes
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland
	 Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus- Quercus – Ulmus*
	- Mesic grasslands
	- Moist or wet eutrophic and mesotrophic grassland
	- Common sandpiper (Actitis hypoleucos)
nr.d.	- Little ringed plover (Charadrius dubius)
Birds	- Kingfisher (<i>Alcedo atthis</i>)
	- Sand martin (<i>Riparia riparia</i>)
Recreational and other uses	
Leisure facilities	- None
Other uses	- None

Nature zone (n2)			
Existing conflicts			
Identified conflicts	- Disturbances due to short distance to villages and roads		
Suggested measures	Suggested measures		
Measures	Description		
Ecological measures	 Actions against invasive species Support/improve habitat of sand martin Remove deponies of building materials Stop illegal gravel extraction Reduce plantations Plant native forest 		
Stakeholder involvement	 Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations, etc. Awareness raising for agriculture concerning deposition of pesticide and nutrient packaging and waste 		
Project Action C.1	 Side arm restoration and riverbed widening "Otok Virje" (rkm 312 - 314,3; orographic right river bank) The planned opening and widening of an existing oxbow should improve river dynamics in this nature zone section of the river. 		

Nature zone (n3)



Location

- County: Varaždin
- Between rkm 313 310, south of Ormož

Current situation Ecological sensitivity

Project Action C.1

Ecological sensitivity	Description
Habitat types	 Mesic grasslands Fruit and nut tree orchards Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Permanent eutrophic lakes, ponds and pools
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- None
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and villages and the river
Suggested measures	
Measures	Description
Information	- Raising awareness on species living in the area and "rules of behaviour in nature"

river and the river dynamic improves

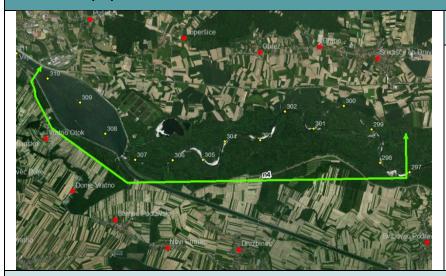
314,3; on the orographic right river bank)

Side arm restoration and riverbed widening "Otok Virje" (rkm 312 –

Within the project action an old side arm will be reconnected to the

Nature zone (n3)	
Others	 Keep the status quo after restoration (project Action C.1), shortening of the groynes downstream of the bridge at rkm 310 in the future

Nature zone (n4)



Location

- County: Varaždin
- Between rkm 310 297

Ecological sensitivity	Description
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Moist or wet eutrophic and mesotrophic grassland
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent eutrophic lakes, ponds and pools
	- Unvegetated river gravel banks
	- Mesic grasslands
	- Water-fringing beds of tall canes
	- Common sandpiper (Actitis hypoleucos)
Birds	- Little ringed plover (Charadrius dubius)
	- Kingfisher (Alcedo atthis)
Recreational and other uses	
Leisure facilities	- Picnic area
Other uses	- Motorbikes and quads usage
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
identified conflicts	- Motorbikes and quads usage on gravel banks
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for zonation, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations
Others	- Prohibit access of motorbikes and quads on gravel banks

Nature zone (n5)



Location

- County: Varaždin and Međimurje
- Between rkm 296 291

Ecological sensitivity	Description
	- Mesic grasslands
	- Unvegetated river gravel banks
	- Moist or wet eutrophic and mesotrophic grassland
	- Permanent non-tidal, smooth-flowing watercourses
Habitat types	- Littoral zone of inland surface waterbodies
	- Water-fringing beds of tall canes
	- Dry grasslands
	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Common sandpiper (Actitis hypoleucos)
Birds	- Little ringed plover (<i>Charadrius dubius</i>)
	- Kingfisher (Alcedo atthis)
	- Sand Martin (<i>Riparia riparia</i>)
Recreational and other	
uses	
	- Bird watching tower
Leisure facilities	- Information board
	- Fast food
Other uses	- Picnic area
	- Usage motorbikes and quads
	- Rafting

Nature zone (n5)	
Existing conflicts	
Identified conflicts	Disturbances due to of short distance to roads and villagesUsage motorbikes and quads on gravel banks
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for zoning, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Project Action C 2	- Side arm restoration and river bed widening "Stara Drava Varazdin"; on the orographic left river bank (rkm 289,3-292); the reentry of the restored side arm falls within this nature zone.
	 The action reconnects and recreates retention areas in the hydro- power area at Cakovec and potentially contributes to an increase in ecological value of the area

Nature zone (n6)

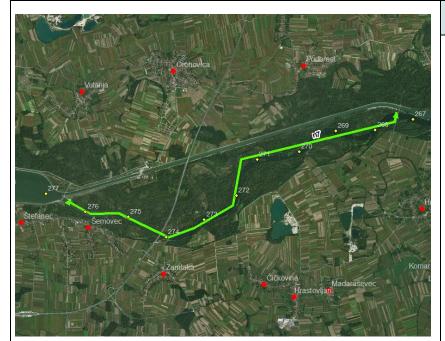


Location

- County: Varaždin and Medimurje
- Between rkm 289,5 288,5

Ecological sensitivity	Description
Habitat types	 Moist or wet eutrophic and mesotrophic grassland Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent eutrophic lakes, ponds and pools Water-fringing beds of tall canes Mesic grasslands Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- None
Other uses	Motorbikes and quads usageRafting
Existing conflicts	
Identified conflicts	 Small or no buffer between roads and sensitive habitat types Motorbikes and quads usage on gravel banks Rafting
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for zoning, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation

Nature zone (n7)

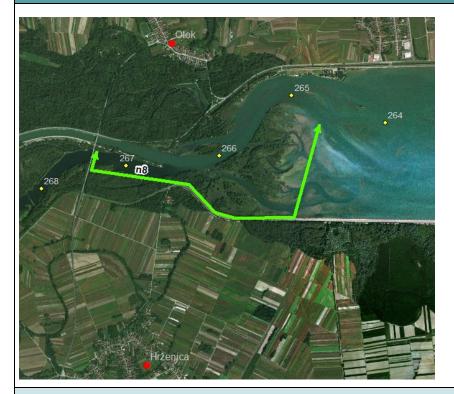


Location

- County: Varaždin
- Between rkm 276,5 267,5

Current Situation	
Ecological sensitivity	Description
Habitat types	 Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Dry grasslands Permanent mesotrophic lakes ponds and pools
Birds	- Sand Martin (<i>Riparia riparia</i>)
Recreational and other uses	
Leisure facilities	- Provisory route of the planned Amazon of Europe Bike Trail
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. management plan)
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	- Connect the route of the Amazon of Europe Bike Trail in the west of the nature zone (bridge)

Nature zone (n8)



Location

- County: Varaždin, Varasd
- Between rkm 267 265

Ecological sensitivity	Description
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Water-fringing beds of tall canes
Birds	- Black stork (Ciconia nigra)
Recreational and other uses	
Leisure facilities	- Highly frequented by people
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to boats, visitors and short distance to roads
identified conflicts	- Intensive use by people
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan)
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	- Detailed planning for visitor guiding (zones)

Nature zone (n9)



Location

- County: Varaždin and Medimurje
- Between rkm 257 251

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Mesic grasslands Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Moist or wet eutrophic and mesotrophic grassland Permanent eutrophic lakes, ponds and pools Permanent mesotrophic lakes ponds and pools Permanent non-tidal, smooth-flowing watercourses Unvegetated river gravel banks
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Common sandpiper (Actitis hypoleucos) Sand Martin (Riparia riparia)
Recreational and other uses	
Leisure facilities	- Start of rafting section
Other uses	- Rafting - Highly frequented by people
Existing conflicts	
Identified conflicts	 Disturbances due to short distance to roads and villages Intensive use by people Rafting
Suggested measures	
Measures	Description

Nature zone (n8)	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations

Nature zone (n10)



Location

- County: Varaždin; Medimurje and Koprivnica-Križevci
- Between rkm 249,5 240

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Dry grasslands Mesic grasslands Littoral zone of inland surface waterbodies Unvegetated river gravel banks Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Water-fringing beds of tall canes
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Common sandpiper (Actitis hypoleucos) Sand Martin (Riparia riparia) White tailed sea eagle(Haliaeetus albicilla)
Recreational and other uses	
Leisure facilities	End of rafting sectionRoute of the provisory Amazon of Europe Bike Trail
Other uses	SwimmingRaftingHighly frequented by people
Existing conflicts	
Identified conflicts	 Disturbances due to short distance to roads and villages Intensive use by people Rafting
Suggested measures	
Measures	Description

Nature zone (n10)	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Project Action C 3.1 and C.9.2	- Side arm restoration "Donja Dubrava" (rkm 240 – 241,45; on the orographic left river bank) (C.3.1)
	- Re-introduction of Typha minima around the mouth of the re- opened side arm (C.9.2)
	- The measure will re-connect smaller arms, oxbows and waters by deepening the side-arm's bed and removal of sediment deposits at the entrance of the side-arm; to slow down riverbed deepening and improve retention capacity
	- Ultimate aims are to improve the ecological status of the river and to decrease human disturbance through less accessibility

Nature zone (n11)



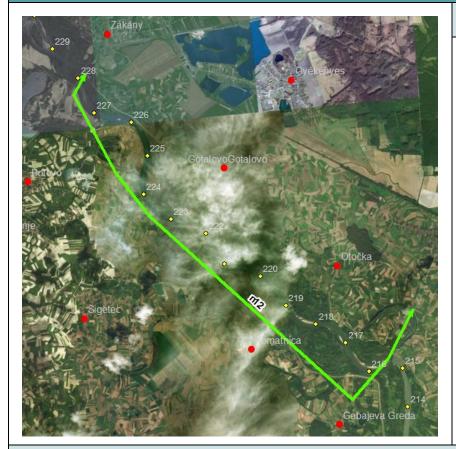
Location

- County: Koprivnica-Križevci
- Between rkm 235,5 228
- Restoration of river bank at Libanovec (rkm 233,5)

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Unvegetated river gravel banks Littoral zone of inland surface waterbodies Moist or wet eutrophic and mesotrophic grassland Permanent non-tidal, smooth-flowing watercourses Water-fringing beds of tall canes Dry grasslands Permanent eutrophic lakes, ponds and pools
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) Little Tern(Sterna albifrons) White tailed eagle (Haliaeetus albicilla) Common sandpiper (Actitis hypoleucos)
Recreational and other	
uses	
Leisure facilities	Educational trailFishing hutsRoute of the provisory Amazon of Europe Bike Trail
Other uses	Angling, fishingKayakBoat dock
Existing conflicts	
Identified conflicts	Disturbances due to short distance to roads and villagesBoat dock

Nature zone (n11)		
Suggested measures	Suggested measures	
Measures	Description	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, paths and uses 	
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation	
Information	- Awareness raising on species living in the area as well as basic rules for "correct behaviour in nature" (existing educational trail)	
Others	 Avoid disturbances by angling, fishing, canoeing, relocate boat dock Plan the Amazon of Europe Bike Trail according to general recommendation. 	
Project action C.4	 Side arm restoration "Botovo bridge" (rkm 226,6 – 227,9; on the orographic right river bank) Opening and widening of an existing side arm will be done with the aim to reduce river bed incision and the pressure through human disturbance in order to improve the ecological status of the river and improve retention capacity 	
Project action C.8.1	 Restoration of river bank at Libanovec (rkm 233,5; on the orographic right bank of the river) The steep bank of the river at this location hosts one of the largest sand martin colonies in Croatia and is subject to a stakeholder and negotiation process involving the local municipality, farmers, nature protection institution and Croatian Waters for a long-term habitat management solution 	

Nature zone (n12)



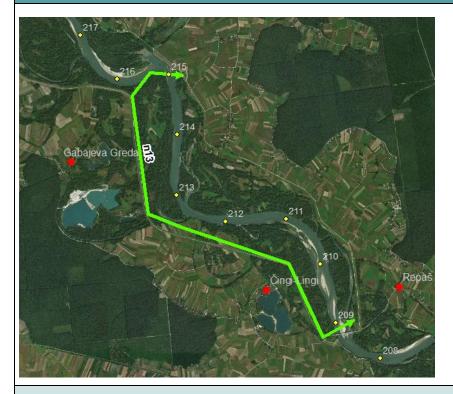
Location

- County: Koprivnica-Križevci
- Between rkm 228 216

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Mesic grasslands Permanent non-tidal, smooth-flowing watercourses Fruit and nut tree orchards Dry grasslands Unvegetated river gravel banks Unvegetated river mud banks
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) Little Tern(Sterna albifrons) Common sandpiper (Actitis hypoleucos) Black stork (Ciconia nigra)
Recreational and other	
uses	

Nature zone (n12)	
Leisure facilities	 Fishing huts Route of the provisory Amazon of Europe Bike Trail Educational path
Other uses	Angling, fishingKayaking
Existing conflicts	
Identified conflicts	 Disturbances due to short distance to roads Angling, fishing Kayaking
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	 Avoid disturbances by angling, fishing, canoeing Plan the Amazon of Europe Bike Trail according to general recommendation.
Project action C.5.2	 Initial channel at Novačka (rkm 213,5 – 215,5; on the orographic right river bank) An initial channel planned for partial diversion of the pressure by water flow of the Drava from the flood protection dykes that will contribute to increased river dynamic, creation of new habitats and

Nature zone (n13)



Location

- County: Koprivnica-Križevci
- Between rkm 215 209

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Unvegetated river mud banks Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Unvegetated river gravel banks Littoral zone of inland surface waterbodies Permanent mesotrophic lakes ponds and pools Mesic grasslands Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Permanent eutrophic lakes, ponds and pools
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) Common Tern (Sterna hirundo) Little Tern(Sterna albifrons) Common sandpiper (Actitis hypoleucos)
Recreational and other	
uses	
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail near- by
Other uses	- Angling, fishing

Nature zone (n13)		
	- Kayak	
Existing conflicts	 Visitor zone v12 is in the direct vicinity of this nature zone, stretching along virtually the same river section but focused on the inland area and not at the river section 	
Identified conflicts	Disturbances due to short distance to roadsAngling, fishingKayaking	
Suggested measures		
Measures	Description	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, paths and uses 	
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisation	
Others	 Avoid disturbances by angling, fishing, canoeing Plan the Amazon of Europe Bike Trail according to general recommendation. 	
Project action C.5.2	 Initial channel at Novačka (rkm 213,5 – 215,5; on the orographic right river bank An initial channel planned for partial diversion of the pressure by water flow of the Drava from the flood protection dykes that will contribute to increased river dynamic, creation of new habitats and remobilisation of sediments on this river section. 	

Nature zone (n14)



Location

- County: Koprivnica-Križevci
- Between rkm 208,5 -200,5

Ecological sensitivity	Description
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Water-fringing beds of tall canes Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Unvegetated river gravel banks Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Permanent eutrophic lakes, ponds and pools Mesic grasslands Littoral zone of inland surface waterbodies
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) White-tailed eagle (Haliaeetus albicilla) Common sandpiper (Actitis hypoleucos)
Recreational and other uses	
Leisure facilities	- None
Other uses	- Angling, fishing - Kayak
Existing conflicts	
Identified conflicts	 Disturbances due to short distance to roads Angling, fishing Kayaking
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. man-

Nature zone (n14)		
	-	agement plan) Detailed planning for zoning, paths and uses
Stakeholder involvement	-	Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations
Others	-	Avoid disturbances by angling, fishing, canoeing Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n15)

Current situation

Other uses

Existing conflicts

Identified conflicts



Location

- County: Koprivnica-Križevci
- Between rkm 200 194,5

Ecological sensitivity	Description
Habitat types	 Littoral zone of inland surface waterbodies Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Dry grasslands Unvegetated river gravel banks Unvegetated river sand banks Permanent non-tidal, smooth-flowing watercourses Free-floating and rooted floating vegetation of eutrophic waterbodies
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Common Tern (Sterna hirundo) Common sandpiper (Actitis hypoleucos) White-tailed eagle (Haliaeetus albicilla)
Recreational and other	
uses	
Leisure facilities	Kayak exitRoute of the provisorily planned Amazon of Europe Bike Trail
Other uses	- Angling, fishing

Disturbances due to narrow buffer between roads and river

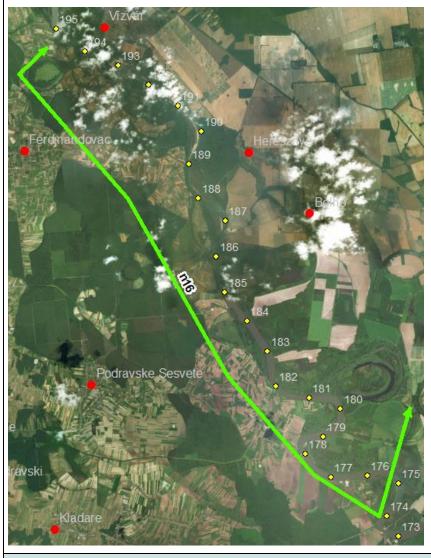
Kayaking

Kayaking

Angling, fishing

Nature zone (n15)	
	- Rafting end close by
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. management plan)
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations
Others	 Avoid disturbances by angling, fishing, canoeing Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n16)



Location

- County: Koprivnica-Križevci and Virovitica-Podravina
- Between rkm 195 176,5
- includes intermittent sections of the Drava on Hungarian territory

Ecological sensitivity (medium, high and very high)	Description
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Free-floating and rooted floating vegetation of eutrophic waterbodies Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Dry grasslands Unvegetated river sand banks Unvegetated river mud banks Littoral zone of inland surface waterbodies Water-fringing beds of tall canes Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus –Ulmus) Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and

Nature zone (n16)	
	related woodland
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) – one of the largest sand martin colonies on the orographic left river bank in Hungary is close to the locality Heresznye (Hungary) as well as a sand martin colony on the orographic right side (Croatia). Common sandpiper (Actitis hypoleucos) Black stork (Ciconia nigra) White-tailed eagle (Haliaeetus albicilla) Heron Colony
Recreational and other uses	- Heron Colony
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail and resting place
Other uses	- None
Existing conflicts	
Identified conflicts	Disturbances due to short distance to roadsBoat docks
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Long-term plan for conservation of the favourable conditions for the Heresznye sand martin colony (including no action)
Stakeholder involvement	 Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishing organisation Hungarian National Park Duna-Dráva
Others	- Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n17)



Location

- County: Virovitica-Podravina
- Between rkm 167 163,5

Ecological sensitivity	Description
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies Unvegetated river sand banks Unvegetated river mud banks Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Dry grasslands Mesic grasslands Fruit and nut tree orchards
Birds	- Kingfisher (Alcedo atthis)
Recreational and other uses	
Leisure facilities	- None
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and river
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan)

Nature zone (n18)



Location

- County: Virovitica-Podravina
- Between rkm 162 157

-		
Ecological sensitivity	Description	
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Mesic grasslands Free-floating and rooted floating vegetation of eutrophic waterbodies 	
Birds	 White-tailed eagle (Haliaeetus albicilla) Little ringed plover (Charadrius dubius) European bee-eater (Merops apiaster) 	
Recreational and other uses		
Leisure facilities	- None	
Other uses	- Boating	
Other economic uses	- Intensive agricultural production (irrigation system)	
Existing conflicts		
Identified conflicts	- Disturbances due to narrow buffer between roads and villages and the river	
Suggested measures		
Measures	Description	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) 	

Nature zone (n19)



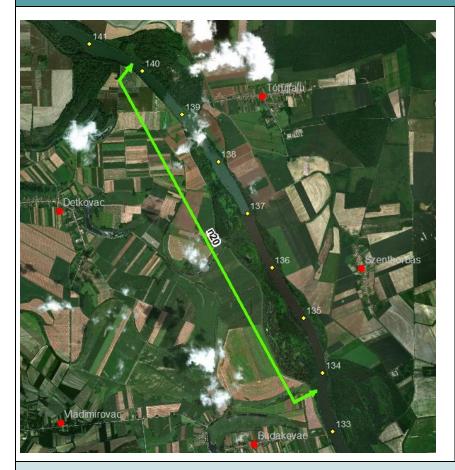
Location

- County: Virovitica-Podravina
- Between rkm 150 140,5

Current situation	
Ecological sensitivity (medium, high and very high)	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Free-floating and rooted floating vegetation of eutrophic waterbodies Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Littoral zone of inland surface waterbodies Fruit and nut tree orchards Unvegetated river sand banks
Birds	 Little ringed plover (Charadrius dubius) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) Common sandpiper (Actitis hypoleucos) European bee-eater (Merops apiaster)
Recreational and other uses	
Leisure facilities	Picnic siteRoute of the provisorily planned Amazon of Europe Bike Trail
Other uses	- Boating
Existing conflicts	
Identified conflicts	Disturbances due the short distance to roadsPicnic sites
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses

Nature zone (n19)		
Stakeholder involvement	-	Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	-	Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n20)



Location

- County: Virovitica-Podravina
- Between rkm 140,5 -133,5

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Permanent eutrophic lakes, ponds and pools – Two oxbow lakes on the lines of RKMs 139-137 and 134-133 are not included in the image above within the region between the nature zone's green delimitation and project area border, however, must be kept in mind as adjacent to this nature zone
Birds	- White tailed eagle (Haliaeetus albicilla)
Recreational and other uses	
Leisure facilities	 Camp site Picnic site Slipway Route of the planned Amazon of Europe Bike Trail

Nature zone (n20)			
Other uses	- Boating		
Other economic uses	- Intensive agricultural production (irrigation system)		
Existing conflicts			
Identified conflicts	 Disturbances due to narrow buffer between roads and river Slipway Camp site 		
Suggested measures	Suggested measures		
Measures	Description		
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses Consider the oxbows in the hinterland for all management and development plans for this zone 		
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation		
Others	 Plan the Amazon of Europe Bike Trail according to general recommendation. 		

Nature zone (n21)



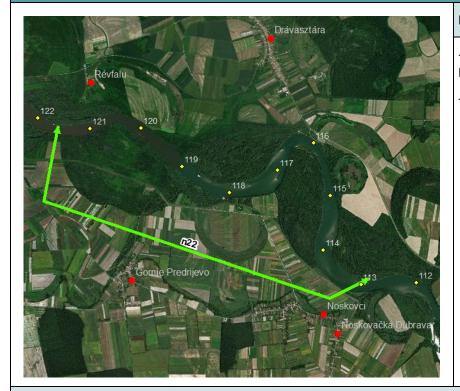
Location

- County: Virovitica-Podravina
- Between rkm 133,5 -124,5

Ecological sensitivity	Description
Legiogical scriptuity	· ·
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Mesic grasslands Water-fringing beds of tall canes Fruit and nut tree orchards Littoral zone of inland surface waterbodies
Birds	 Little ringed plover (Charadrius dubius) Black stork (Ciconia nigra) Common sandpiper (Actitis hypoleucos)
Recreational and other uses	
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail, including resting place
Other uses	- Boating
Other economic uses	- Intensive agricultural production (irrigation system)
Existing conflicts	
Identified conflicts	- Disturbances due to the short distance to roads
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. management plan)

Nature zone (n21)		
	-	Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	-	Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	-	Plan the Amazon of Europe Bike Trail according to general recommendations. A bridge across the channel close to rkm 127 is in plan

Nature zone (n22)



Location

- County: Virovitica-Podravina
- Between rkm 122 113

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Free-floating and rooted floating vegetation of eutrophic waterbodies Water-fringing beds of tall canes Permanent eutrophic lakes, ponds and pools Littoral zone of inland surface waterbodies Unvegetated river sand banks
Birds Recreational and other	 Little ringed plover (Charadrius dubius) Black stork (Ciconia nigra) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia)
uses	
Leisure facilities	 Viewpoint Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Boating
Other economic uses	- Intensive agricultural production (irrigation system)
Existing conflicts	

Nature zone (n22)		
Identified conflicts	- Disturbances due to narrow buffer between roads and the river	
Suggested measures		
Measures	Description	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses 	
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations	
Others	- Plan the Amazon of Europe Bike according to general recommendation.	

Nature zone (n23)



Location

- County: Virovitica-Podravina and Osijek-Baranja
- Between rkm 112,5 -100,5

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Free-floating and rooted floating vegetation of eutrophic waterbodies Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Moist or wet eutrophic and mesotrophic grassland Water-fringing beds of tall canes Littoral zone of inland surface waterbodies Unvegetated river sand banks Mesic grasslands
Birds Recreational and other uses	 Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) European bee-eater (Merops apiaster) Black stork (Ciconia nigra) White-tailed eagle (Haliaeetus albicilla)
Leisure facilities	 Viewpoint Route of the provisorily planned Amazon of Europe Bike Trail including bird watching
Other uses	- Boating
Existing conflicts	
Identified conflicts	- Disturbances due of short distance to roads
Suggested measures	
Measures	Description

Nature zone (n23)	
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen's organisations
Others	 Plan the Amazon of Europe Bike Trail according to general recommendation. Consider potential conflicts with bird breeding places
Project action C.6	 Side arm restoration "Miholjacki Martinci" (between rkm 104 – 106 on the orographic right river bank) The action entails reconnection of a side-arm by removal of the barrier at its entrance Aims of the action include reduction of human disturbance and of riverbed incision by partially redirecting the water flow into the side arm and to contribute to reaching the good ecological status of the water

Nature zone (n24)



Location

- County: Osijek-Baranja
- Between rkm 100,5 80

Ecological sensitivity (me-	Description
dium, high and very high)	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Permanent mesotrophic lakes ponds and pools Littoral zone of inland surface waterbodies Free-floating and rooted floating vegetation of eutrophic waterbodies Unvegetated river sand banks Water-fringing beds of tall canes
Birds Recreational and other	 Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) European bee-eater (Merops apiaster) Black stork (Ciconia nigra)
uses	
Leisure facilities	- Information point
Other uses	SwimmingCanoeing
Existing conflicts	
Identified conflicts	 Disturbances due to narrow buffer between roads and the river Swimming spots Canoeing Slipway close by
Suggested measures	

Nature zone (n24)	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses

Nature zone (n25)¹⁰



Location

- County: Osijek-Baranja
- Between rkm 79 75

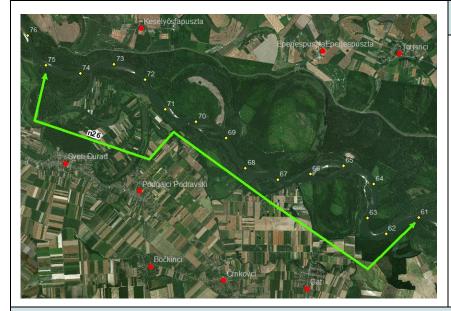
Ecological sensitivity (medium, high and very high)	Description
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Habitat types of fish farm:
	 Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Water-fringing beds of tall canes Moist or wet eutrophic and mesotrophic grassland Permanent eutrophic lakes, ponds and pools
Birds	The extensively used fishponds in the area Donji Miholjac have created a beloved breeding and nesting place for a large number of rare and protected bird species. - Sand Martin (<i>Riparia riparia</i>) - Common tern (<i>Sterna hirundo</i>) - Kingfisher (<i>Alcedo atthis</i>) - Little ringed plover (<i>Charadrius dubius</i>) - White-tailed eagle (<i>Haliaeetus albicilla</i>)

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¹⁰ Assignment of the commercially used fishponds in the Donji Miholjac domain as a nature zone was agreed to by most of the involved stakeholders. The main goal of this assignment is the conservation of the conditions favorable for bird nesting and resting places in order to preserve the extraordinary bird species diversity relying on the current extensive fish production. As in the case of all nature zones, assignment of this area as a nature zone refers exclusively to the use of the zone by potential and actual visitors, from a nature point of view. Assignment as a nature zone does not exclude temporary and geographically limited possibility for visitors to access the area, in agreement with the private area's owners.

Nature zone (n25) ¹⁰	
Recreational and other uses	
Leisure facilities	- Existing bike route (partially on dike)
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads
Suggested measures	
Measures	Description
Facilities	 Bird watching tower outside of fish farm Connect existing bike route to Amazon of Europe Bike Trail according to general recommendation.
Others	 Measures to preserve the high natural value of the area (including e.g. no change in current use) Initiate communication between protected area management and owners/ administrators of fish farm, regarding willingness to connect the area to eco-tourism (or even providing limited numbers of guided tours)

Nature zone (n26)



Location

- County: Osijek-Baranja
- Between rkm 75 61

Ecological sensitivity (me-	Description
dium, high and very high)	Description
Habitat types	 Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies Unvegetated river sand banks Water-fringing beds of tall canes
Birds	 Black Stork (Ciconia nigra) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) White tailed sea eagle(Haliaeetus albicilla)
Recreational and other uses	
Leisure facilities	 Weekend huts Barbecue zone Route of the provisorily planned Amazon of Europe Bike Trail, including resting place
Other uses	- Canoeing - Boating
Other economic uses	- Intensive agricultural production (irrigation system)
Existing conflicts	

Nature zone (n26)	
Identified conflicts	 Disturbances due to narrow buffer between roads and the river Canoeing, boating Weekend huts and barbecue places
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses
Ecological measures Stakeholder involvement	agement plan)

Nature zone (n27)



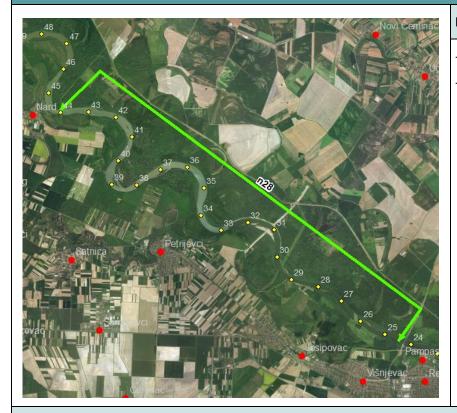
Location

- County: Osijek-Baranja
- Between rkm 53 46

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Mesic grasslands Littoral zone of inland surface waterbodies Unvegetated river sand banks
Birds	 Black Stork (Ciconia nigra) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia) White tailed sea eagle(Haliaeetus albicilla)
Recreational and other	
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail, including resting place
Other uses	- Boating
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and the river
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. man-

Nature zone (n27)	
	agement plan) - Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	 Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n28)



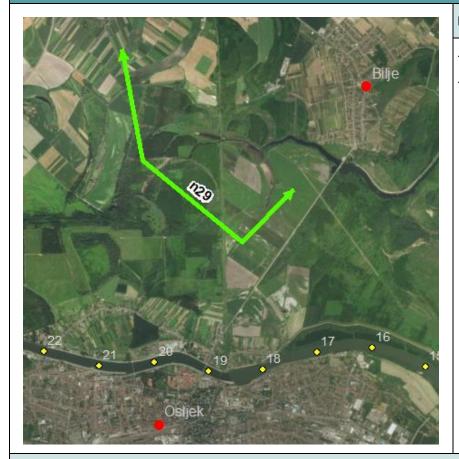
Location

- County: Osijek-Baranja
- Between rkm 44 24

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Permanent mesotrophic lakes ponds and pools Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Unvegetated river sand banks Unvegetated river mud banks Littoral zone of inland surface waterbodies Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Free-floating and rooted floating vegetation of eutrophic waterbodies Water-fringing beds of tall canes
Birds Recreational and other	 Kingfisher (Alcedo atthis) Little ringed plover (Charadrius dubius) Sand martin (Riparia riparia) White-tailed eagle (Haliaeetus albicilla)
uses	
Leisure facilities	- None
Other uses	- Boating

Nature zone (n28)	
	 Swimming Route of the provisorily planned Amazon of Europe Bike Trail
Other economic uses	- Intensive agricultural production (irrigation system)
Existing conflicts	
Identified conflicts	 Disturbances due to narrow buffer between roads and the river Planned hydropower dam between rkm 30 – 29 Swimming and picnic sites Boating
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	 Plan the Amazon of Europe Bike Trail according to general recommendation.

Nature zone (n29)



Location

- County: Osijek-Baranja
- North of Tvrdavica

Cui rent situation		
Ecological sensitivity	Description	
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Mesic grasslands Water-fringing beds of tall canes 	
Birds	- White tailed sea eagle (Haliaeetus albicilla)	
Recreational and other uses		
Leisure facilities	- None	
Other uses	- None	
Existing conflicts		
Identified conflicts	 Disturbances due to narrow buffer between roads and villages/city and the river The quality of the groundwater in the hinterland of of rkms 21 and above is low due to industrial waste water emmissions; which is the reason why this area hasn't been included into the nature zone. 	

Nature zone (n29)	
Suggested measures	
Measures	Description
Ecological measures	 Detailed planning for ecological measures and actions (e.g. management plan) Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	- Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	- None

Nature zone (n30)



Location

- County: Osijek-Baranja
- Between rkm 17,5 -Kopačevo

Current situation	
Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Mesic grasslands Water-fringing beds of tall canes
Birds	- White tailed sea-eagle (Haliaeetus albicilla)
Recreational and other uses	
Leisure facilities	- Visitor centre and educational path is planned (project "Naturavita")
Other uses	- Route of the provisorily planned Amazon of Europe Bike Trail
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and villages/city and the river
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for ecological measures and actions (e.g. management plan)

Nature zone (n30)		
	-	Detailed planning for zoning, facilities, paths and uses
Stakeholder involvement	-	Nature conservation, spatial planning, land owners, Public Institution, local municipality, local NGOs, fishermen organisation
Others	-	Plan the Amazon of Europe Bike Trail according to general recommendation.

5.3 Visitor zones

Visitor zone (v1)



Location

- County: Varaždin
- Between rkm 319 318,5, east of Veliki Lovrečan

Ecological sensitivity	Description
Habitat types	- Permanent non-tidal, smooth-flowing watercourses
	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*)
	- Moist or wet eutrophic and mesotrophic grassland
	- Permanent mesotrophic lakes, ponds and pools
	- Mesic grasslands
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- Fishing club
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and villages and the river
Suggested measures	
Measures	Description
Information	- Awareness raising on species living in the area and "correct behav-

Visitor zone (v1)	
	iour in nature"

Visitor zone (v2)



Location

- County: Varaždin
- Between rkm 297 296, close to Svibovec Podravski

Current situation	
Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Unvegetated river gravel banks
Birds	- Little ringed plover (Charadrius dubius)
Recreational and other	
uses	
	- Start of rafting section
Leisure facilities	- Picnic site
	- Marked off road bike route
Other uses	- Usage for motorbikes and quads
Existing conflicts	
Identified conflicts	- Disturbances due to narrow buffer between roads and villages and the river and recreational uses
Suggested measures	

Visitor zone (v1)	
Measures	Description
Facilities	- Provide parking lots to concentrate car traffic to one certain area
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v3)



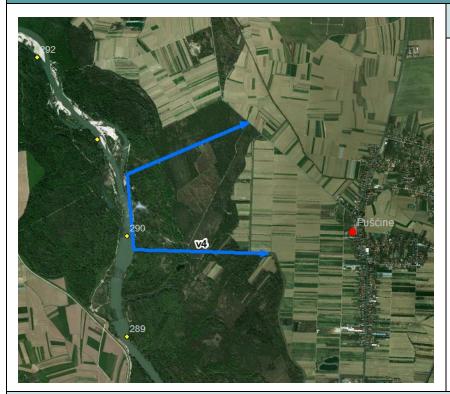
Location

- County: Medimurje
- Between rkm 293 292,5

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Unvegetated river gravel banks
Birds	Close by e.g. Common sandpiper (<i>Actitis hypoleucos</i>), Little ringed plover (<i>Charadrius dubius</i>), Kingfisher (<i>Alcedo atthis</i>), etc.
Recreational and other uses	
Leisure facilities	- Bird watching tower
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
Suggested measures	

Visitor zone (v1)	
Measures	Description
Facilities	- Provide parking lots
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v4)



Location

- County: Medimurje
- Between rkm 291 290
- West of Pušćine

Current situation Ecological sensitiv

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Recently abandoned above-ground spaces of extractive industrial sites Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies
Birds	- Little ringed plover (Charadrius dubius)
Recreational and other uses	
Leisure facilities	- None
Other uses	Usage for motorbikes and quadsRafting
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and recreational uses
Suggested measures	
Measures	Description
Facilities	- Provide parking lots

Visitor zone (v4)	
Information	Awareness raising for visitors concerning nature protectionWaste management

Visitor zone (v5)



Location

- County: Međimurje
- Between rkm 290,5 289,5
- West of Pušćine

Current situation	
Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Mesic grasslands
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- None
Other uses	Usage for motorbikes and quadsrafting
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and recreational uses
Suggested measures	
Measures	Description
Facilities	- None
Information	- Awareness raising for visitors concerning nature protection

Bikes, motorbikes, quads only use existing roads

Visitor zone (v6)



Location

- County: Varaždin and Međimurje
- Between rkm 288 282
- North of Varaždin

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Mesic grasslands Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies Water-fringing beds of tall canes Fruit and nut tree orchards Dry grasslands Unvegetated river mud banks
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	 End of rafting section Information boards Restaurants Marina Potentially illegal huts/houses Marked off-road bike route Route of the provisorily planned Amazon of Europe Bike Trail including resting place

Visitor zone (v6)	
	- Motorbikes quads
Other uses	- Rafting
	- Fishing
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses at the river
Suggested measures	
Measures	Description
Ecological measures	- Detailed planning for zoning, paths and uses
	- Build information centre
Facilities	 Connect Amazon of Europe Bike Trail to the existing usages and related facilities according to general provisions.

Visitor zone (v7)



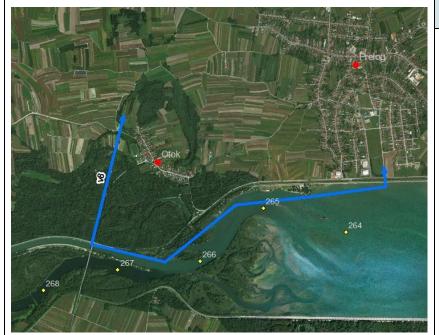
Location

- County: Varaždin and Međimurje
- At rkm 277
- South of Vularja

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Mesic grasslands Dry grasslands Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- None
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
Suggested measures	
Measures	Description
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v7)		
Jezerciča Project	- Planned visitor zone (watching tower, restaurant etc.)	

Visitor zone (v8)



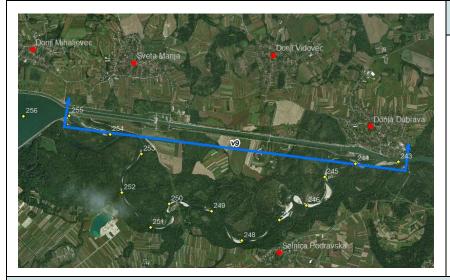
Location

- County: Varaždin and Međimurje
- Between rkm 267,5 263,5, close to Otok

Ecological sensitivity	Description
Habitat types	 Permanent eutrophic lakes, ponds and pools Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Water-fringing beds of tall canes Permanent mesotrophic lakes ponds and pools Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Fruit and nut tree orchards
Birds	- Black stork (Ciconia nigra)
Recreational and other uses	
Leisure facilities	 Marina Picnic area Information board Bird watching tower Accommodations Route of the provisorily planned Amazon of Europe Bike Trail
Other uses	Areas highly frequented by peopleKite surfing
Existing conflicts	

Visitor zone (v7)		
Identified conflicts	- Disturbances due to short distance to roads and recreational uses at the river	
Suggested measures		
Measures	Description	
Ecological measures	- Detailed planning for zoning, facilities, paths and uses	
Ecological measures Facilities	 Detailed planning for zoning, facilities, paths and uses Connect Amazon of Europe Bike Trail according to general recommendation. 	

Visitor zone (v9)



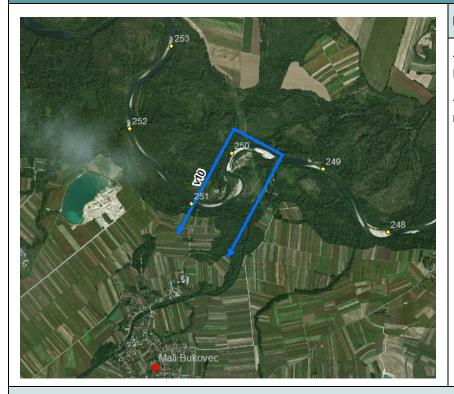
Location

- County: Varaždin and Međimurje
- Between rkm 255 243, upstream of Donja Dubrava

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Dry grasslands Mesic grasslands Littoral zone of inland surface waterbodies Unvegetated river gravel banks Fruit and nut tree orchards
Birds	Little ringed plover (<i>Charadrius dubius</i>)Common sandpiper (<i>Actitis hypoleucos</i>)
Recreational and other uses	
Leisure facilities	 Start and end of rafting river section Information boards Route of the provisorily planned Amazon of Europe Bike Trail
Other uses	Highly frequented by peopleJogging
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
Suggested measures	
Measures	Description
Facilities	 Volleyball and football fields BBQ places Rafting Biking

Visitor zone (v9)		
	-	Connect Amazon of Europe Bike Trail according to general recommendation.
Information	-	Awareness raising for visitors concerning nature protection

Visitor zone (v10)



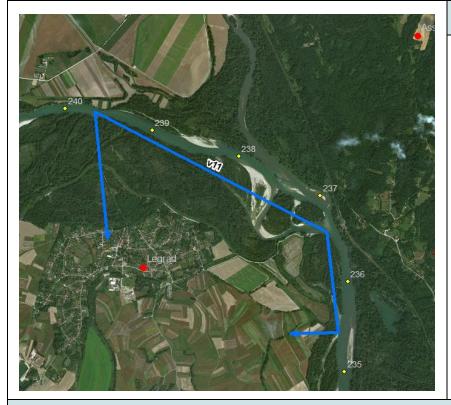
Location

- County: Varaždin and Međimurje
- Between rkm 251 250, north of Mali Bukovec

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Moist or wet eutrophic and mesotrophic grassland Unvegetated river gravel banks Mesic grasslands
Birds	 Little ringed plover (Charadrius dubius) Common sandpiper (Actitis hypoleucos) Kingfisher (Alcedo atthis)
Recreational and other uses	
Leisure facilities	 Bird watching tower (broken down after flood) Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Highly frequented by people - Rafting
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages
Suggested measures	
Measures	Description
Information	- Restrict uses to bird watching

Visitor zone (v10)	
	- Avoid disturbances through rafting
Facilities	 Rebuild bird watching tower Area for education, e.g. new "River's Cool" Detailed planning for Amazon of Europe Bike Trail as it is located in an ecologically sensitive area

Visitor zone (v11)



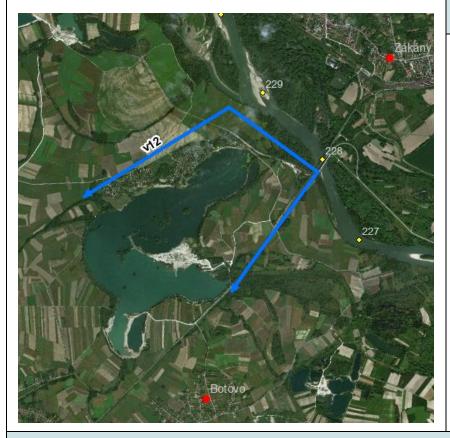
Location

- County: Koprivnica-Križevci
- Between rkm 240 235,5
- close to Legrad

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools
	 Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Dry grasslands Littoral zone of inland surface waterbodies
	 Unvegetated river gravel banks Water-fringing beds of tall canes Fruit and nut tree orchards
Birds	 Little ringed plover (Charadrius dubius) Common sandpiper (Actitis hypoleucos) Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia)
Recreational and other uses	
Leisure facilities	 Drava Water School (Croatian Waters) Educational path Watch towers Information boards Fishing huts

Visitor zone (v11)		
	 "River'sCool" Route of the provisorily planned Amazon of Europe Bike Trail including resting place 	
Other uses	Angling, fishingKayaking	
Existing conflicts		
Identified conflicts	 Disturbances due to short distance to roads and villages Maximum visitor infrastructure limit reached through existing and planned facilities 	
Suggested measures		
Measures	Description	
	 Detailed planning for Amazon of Europe Bike Trail (possible to bike along the dyke which follows the old side arm. The currently planned bike stop should be moved to the right bank of the old side arm.) 	
Facilities	 As a visitor hotspot, branding and quality concept for visitor guidance required to avoid overload of an ecologically still sensitive area Potential resting area of Amazon of Europe Bike Trail 	
	 To avoid overcrowding by infrastructure (e.g. information boards, watching towers), infrastructure that requires repairing should only be repaired after an assessment regarding specific need for the particular item and/or a contractual obligation exist. 	
Ecological measures	- Detailed planning for zoning, facilities, paths and uses	
Project action C.9	 Habitat management and re-introduction Myricaria germanica and Typha minima Two extinct plant species re-introduced to their previously natural habitats on islands and gravel and sand bars along the Drava 	

Visitor zone (v12)



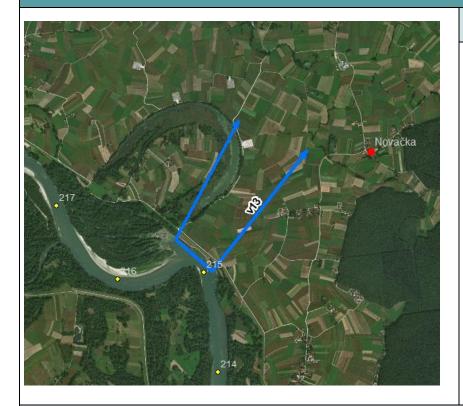
Location

- County: Koprivnica-Križevci
- Between rkm 229 228
- North of Botovo

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) Water-fringing beds of tall canes Fruit and nut tree orchards Littoral zone of inland surface waterbodies Free-floating and rooted floating vegetation of eutrophic waterbodies
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	 Hostel and camping site Educational trail Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Touristic hot spot

Visitor zone (v12)	
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail to existing usages and related facilities according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection (existing educational path)

Visitor zone (v13)



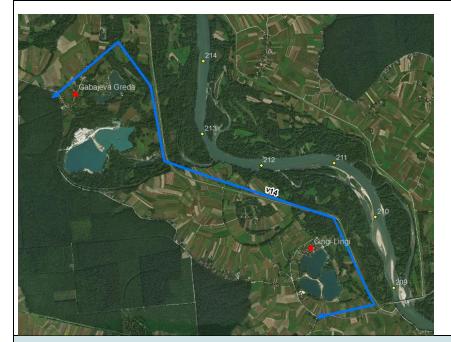
Location

- County: Koprivnica-Križevci
- Between rkm 215,5 215
- West of Novačka

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Fruit and nut tree orchards Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Mesic grasslands
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Touristic hot spot
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and recreational uses

Visitor zone (v13)	
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection (existing educational path)
Project action C.5.1	 Side arm restoration "Novačka" (rkm 217-215; on the orographic left river bank) The action reconnects a side arm and connects smaller arms, oxbows and waters to the main river course with the aim to reduce riverbed incision, reduce the pressure by water flows on the left bank of the river (flood protection dykes)

Visitor zone (v14)



Location

- County: Koprivnica-Križevci
- Between rkm 216 209
- Close to Gabajeva Greda and Čingi-Lingi

Ecological sensitivity	Description
	- Riparian and gallery woodland, with dominant Alnus, Betula, Popu-
	lus or Salix
	- Permanent eutrophic lakes, ponds and pools
	- Permanent mesotrophic lakes ponds and pools
	- Moist or wet eutrophic and mesotrophic grassland
	- Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-
Habitat types	Quercus – Ulmus*
	- Mesic grasslands
	- Free-floating and rooted floating vegetation of eutrophic waterbod-
	ies
	- Water-fringing beds of tall canes
	- Fruit and nut tree orchards
	- Littoral zone of inland surface waterbodies
Birds	- Little ringed plover (Charadrius dubius)
DITUS	- Kingfisher (Alcedo atthis)
Recreational and other	
uses	- Bars
Leisure facilities	- Route of the provisorily planned Amazon of Europe Bike Trail in-
Leisure racincies	cluding resting place
Other uses	- Swimming
Existing conflicts	
	- Disturbances because of short to roads and villages
Identified conflicts	 The visitor zone v12 is located in the direct vicinity of nature zone n10;

Visitor zone (v14)	
	 v12 encompasses the right bank of the river, excluding the riparian gallery woodlands and in vegetated river mud banks that are locat- ed directly on the river bank; whereas
	 n10 encompasses mostly the swimming areas outside of the gallery woodlands and closer to roads and other infrastructure, partially encompassing the left river bank as well
Suggested measures	
Measures	Description
1	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Facilities Information	- Connect Amazon of Europe Bike Trail according to general recom-

Visitor zone (v15)



Location

- County: Koprivnica-Križevci
- Between rkm 201 199

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Mesic grasslands Water-fringing beds of tall canes Free-floating and rooted floating vegetation of eutrophic waterbodies Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	 Accommodation Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Potential hot spot for visitors and recreational uses
Existing conflicts	
Identified conflicts	- None
Suggested measures	
Measures	Description
Information	- Raising awareness on species living in the area and "correct behaviour in nature"

Visitor zone (v16)



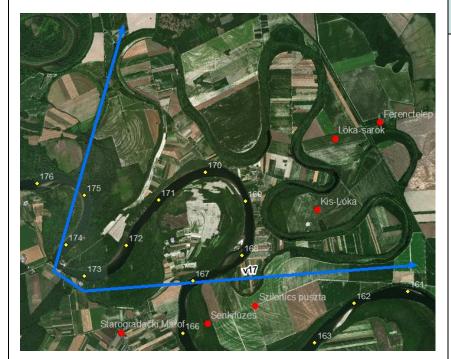
Location

- County: Koprivnica-Križevci
- Between rkm 195 194, close to Vízvár (Hungary)

Ecological sensitivity	Description
	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent eutrophic lakes, ponds and pools
	- Permanent mesotrophic lakes ponds and pools
	- Water-fringing beds of tall canes
	- Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland
Habitat types	- Mesic grasslands
	- Fruit and nut tree orchards
	- Unvegetated river gravel banks
	- Free-floating and rooted floating vegetation of eutrophic waterbod-
	ies
	- Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-
	Quercus – Ulmus*
	- Moist or wet eutrophic and mesotrophic grassland
	- Heron colony / mixed heron colony
Diada	- Kingfisher (Alcedo atthis)
Birds	- Little ringed plover (Charadrius dubius)
	- Common sandpiper (Actitis hypoleucos)
Recreational and other	
uses	
	- Camping site
Leisure facilities	- Boat dock
Leisure lacilities	- Exit of kayaking river section
	- Fishing huts

Visitor zone (v15)	
	 Route of the provisorily planned Amazon of Europe Bike Trail in- cluding resting place
Other uses	- Angling, fishing
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail facilities to existing uses and their related infrastructure according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v17)



Location

- County: Virovitica-Podravina
- Between rkm 175 167, north of Starogradački Marof

Carrent Situation	
Ecological sensitivity	Description
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Popu-
	lus or Salix
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent eutrophic lakes, ponds and pools
	- Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-
	Quercus – Ulmus*)
	- Mesic grasslands
	- Moist or wet eutrophic and mesotrophic grassland
	- Fruit and nut tree orchards
	- Littoral zone of inland surface waterbodies
	- Water-fringing beds of tall canes
	- Free-floating and rooted floating vegetation of eutrophic waterbod-
	ies
	- Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and
	related woodland
Birds	- Kingfisher (Alcedo atthis)
	- Little ringed plover (Charadrius dubius)
	- Common sandpiper (Actitis hypoleucos)
	- Sand Martin (<i>Riparia riparia</i>)
	- European bee-eater (Merops apiaster)
Recreational and other	
uses	
Leisure facilities	- Ferry terminal
	 Route of the provisorily planned Amazon of Europe Bike Trail in- cluding resting place

Visitor zone (v17)	
	- Natura 2000 Park
	- Visitor centre
	- Monitoring tower
	- Information point
Other uses	- Swimming
Existing conflicts	
Identified conflicts	- Disturbances due to short distances to roads
Suggested measures	
Measures	Description
Information	- Awareness raising for visitors concerning nature protection
Stakeholder involvement	- Involve Hungarian National Park in planning
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
	- Eco Centre Banov Brod
	- Restoration/reconnection of oxbows
Ecological measures	- Consider tourism development such as to avoid disturbance of existing sand martin colonies

Visitor zone (v18)



Location

- County: Virovitica-Podravina
- Between rkm 163,5 162, North of Okrugljača

Description
 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Littoral zone of inland surface waterbodies Permanent non-tidal, smooth-flowing watercourses Mesic grasslands
- No breeding places of the considered bird species known (2018)
 Fishing places Benches Picnic and swimming area Maintenance by the municipality (garbage cans, mowing the lawn, etc.)
- None
- Disturbances due to short distance to roads and villages
Description
 Improve parking lot Connect Amazon of Europe Bike Trail according to general recommendation.
- Awareness raising for visitors concerning nature protection

Visitor zone (v19)

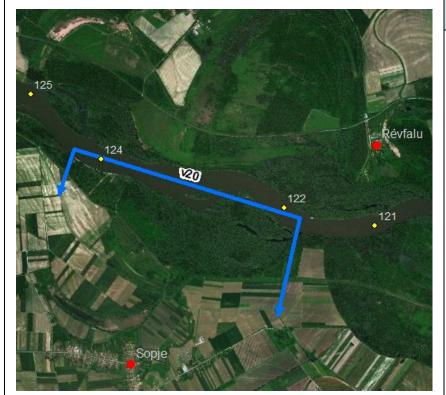


Location

- County: Virovitica-Podravina
- Between rkm 156 150, south of Barcs (Hungary)

Ecological sensitivity	Description
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix - Moist or wet eutrophic and mesotrophic grassland - Littoral zone of inland surface waterbodies - Permanent non-tidal, smooth-flowing watercourses - Mesic grasslands - Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) - Unvegetated river sand banks - Water-fringing beds of tall canes - Free-floating and rooted floating vegetation of eutrophic waterbod-
Birds	ies - No breeding places of the considered hird species known (2018)
	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- Illegal huts
Other uses	- Boating - Fishing
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages
Suggested measures	
Measures	Description
Facilities	 Improve parking lot Resting place and playground will be built Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v20)



Location

- County: Virovitica-Podravina
- Between rkm 124,5 122, north of Sopje

Ecological sensitivity	Description
	- Riparian and gallery woodland, with dominant Alnus, Betula, Popu-
	lus or Salix
	- Permanent non-tidal, smooth-flowing watercourses
	- Permanent eutrophic lakes, ponds and pools
Habitat types	- Moist or wet eutrophic and mesotrophic grassland
Habitat types	- Mesic grasslands
	- Unvegetated river sand banks
	- Free-floating and rooted floating vegetation of eutrophic waterbod-
	ies
	- Water-fringing beds of tall canes
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other	
uses	
	- Connect route of the provisorily planned Amazon of Europe Bike
Leisure facilities	Trail to the visitor zone (e.g. resting place) according to general recommendation.
	- Huts for selling drinks
	- Swimming
Other uses	- Barbecue
	- Managed by municipality
Existing conflicts	

Visitor zone (v18)		
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses	
Suggested measures		
Measures	Description	
Facilities	 Improve parking lot Connect Amazon of Europe Bike Trail according to general recommendation. 	
	mendation.	

Visitor zone (v21)

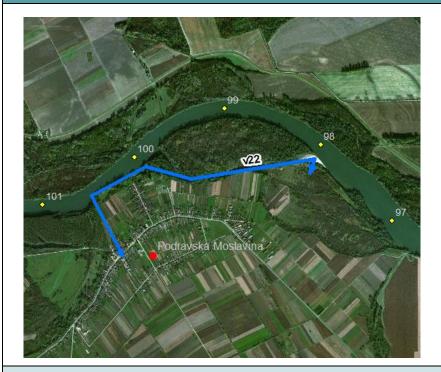


Location

- County: Virovitica-Podravina
- At rkm 113
- close to Noskovci

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Mesic grasslands
	- Water-fringing beds of tall canes
Birds	- No breeding places of priority bird species known (2018)
Recreational and other uses	
Leisure facilities	 Information centre Bird watching tower Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Boating
Existing conflicts	
Identified conflicts	- Disturbances due to distance to roads and villages
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v22)



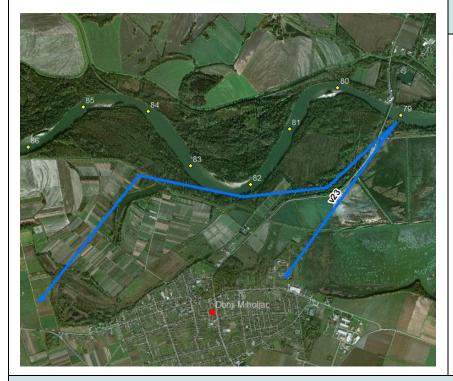
Location

- County: Osijek-Baranja, right bank
- Between rkm 100,5 98, north of Podravska Moslavina

Ecological sensitivity	Description
	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Permanent non-tidal, smooth-flowing watercourses
	- Moist or wet eutrophic and mesotrophic grassland
	- Mesic grasslands
	- Water-fringing beds of tall canes
Habitat types	- Unvegetated river sand banks
	- Littoral zone of inland surface waterbodies
	- Fruit and nut tree orchards
	- Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and
	related woodland
	- Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-
	Quercus – Ulmus*)
Dinda	- Kingfisher (Alcedo atthis)
Birds -	- European bee-eater (Merops apiaster)
Recreational and other	
uses	
Leisure facilities	 Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- Swimming
Existing conflicts	
Identified conflicts	- Disturbances because of short distance to roads and villages and recreational uses

Visitor zone (v21)	
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection
Action C.7	- Side-arm restoration planned

Visitor zone (v23)



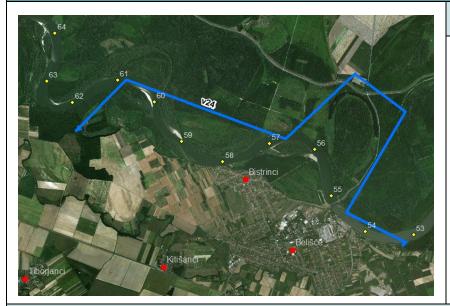
Location

- County: Osijek-Baranja
- Between rkm 84 79, North of Donji Miholjac

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent eutrophic lakes, ponds and pools Moist or wet eutrophic and mesotrophic grassland Mesic grasslands Fruit and nut tree orchards Water-fringing beds of tall canes Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) Free-floating and rooted floating vegetation of eutrophic waterbodies
Birds	No breeding places of the considered bird species known (2018)Bird reserve Podpanj
Recreational and other	
uses	
Leisure facilities	Bird watching towersRoute of the provisorily planned Amazon of Europe Bike Trail
Other uses	SwimmingFishingCanoeing, boating
Existing conflicts	

Visitor zone (v23)		
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses	
Suggested measures		
Measures	Description	
Ecological measures	 Detailed planning for zoning, facilities, paths and uses No intensification of uses at bird reserve Podpanj 	
Others	 Connect provisorily planned Amazon of Europe Bike Trail to the visitor zone (e.g. relocate route, resting place) according to general recommendation. 	
Information	- Awareness raising for visitors concerning nature protection	

Visitor zone (v24)



Location

- County: Osijek-Baranja
- Between rkm 61 53, north of Bistrinci and Belišće

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Permanent mesotrophic lakes ponds and pools Permanent eutrophic lakes, ponds and pools Unvegetated river sand banks Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus* Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland Water-fringing beds of tall canes Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Free-floating and rooted floating vegetation of eutrophic waterbodies Fruit and nut tree orchards
Birds	 Kingfisher (Alcedo atthis) Sand Martin (Riparia riparia)
Recreational and other	
Leisure facilities	 Bird watching towers Weekend huts Slipway Barbecue place Route of the provisorily planned Amazon of Europe Bike Trail including resting place Citadella NGO Zvono

Visitor zone (v24)	
	- Planned hostel for canoeing
Other uses	- Swimming
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	Awareness raising for visitors concerning nature protectionConsider waste management

Visitor zone (v25)



Location

- County: Osijek-Baranja
- Between rkm 45 44, east of Nard

Ecological sensitivity	Description
Habitat types	 Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Permanent non-tidal, smooth-flowing watercourses Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus*) Unvegetated river sand banks Moist or wet eutrophic and mesotrophic grassland Mesic grasslands
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- Weekend huts
Other uses	- Swimming - Boating
Existing conflicts	
Identified conflicts	- Disturbances because of short distance to roads and villages and recreational uses
Suggested measures	
Measures	Description
Facilities	 Small harbour for small boats planned Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v26)

Information



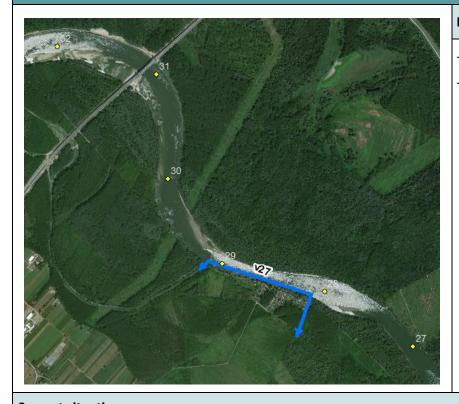
Location

- County: Osijek-Baranja
- Between rkm 39 40

Current situation		
Ecological sensitivity	Description	
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Mixed riparian floodplain and gallery woodland (Fraxinus – Alnus-Quercus – Ulmus) Mesic grasslands 	
Birds	- No breeding places of the considered bird species known (2018)	
Recreational and other uses		
Leisure facilities	- Marina	
Other uses	- Fishing - Swimming	
Existing conflicts		
Identified conflicts	- Disturbances due to short distance to roads and recreational uses	
Suggested measures		
Measures	Description	
Facilities	-	

Awareness raising for visitors concerning nature protection

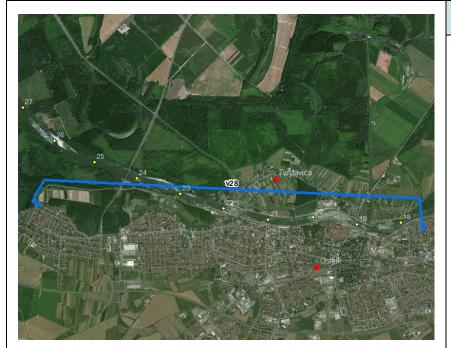
Visitor zone (v27)



- County: Osijek-Baranja
- Between rkm 29 28

Current situation		
Ecological sensitivity	Description	
Habitat types	 Permanent non-tidal, smooth-flowing watercourses Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Moist or wet eutrophic and mesotrophic grassland Mesic grasslands 	
Birds	- No breeding places of the considered bird species known (2018)	
Recreational and other uses		
Leisure facilities	Weekend hutsPicnic siteCafé	
Other uses	SwimmingBoating	
Existing conflicts		
Identified conflicts	- Disturbances due to short distance to roads and recreational uses	
Suggested measures		
Measures	Description	
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.	
Information	- Awareness raising for visitors concerning nature protection	

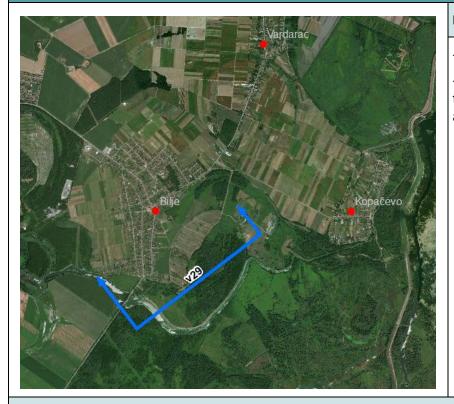
Visitor zone (v28)



- County: Osijek-Baranja
- Between rkm 26 17,5
- North of Višnjevac and Retfala to Osijek

Current situation		
Ecological sensitivity	Description	
Habitat types	 Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Mesic grasslands 	
	 Permanent eutrophic lakes, ponds and pools Permanent non-tidal, smooth-flowing watercourses 	
Birds	- No breeding places of the considered bird species known (2018)	
Recreational and other uses		
Leisure facilities	Picnic sitePlaygroundsRestaurants, barsSlipways	
Other uses	SwimmingFishingBoating	
Existing conflicts		
Identified conflicts	- Disturbances due to short distance to roads and Osijek	
Suggested measures		
Measures	Description	
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.	
Information	- Awareness raising for visitors concerning nature protection	

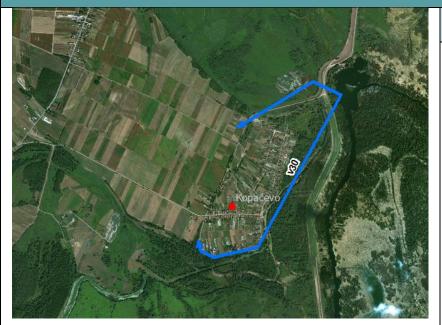
Visitor zone (v29)



- County: Osijek-Baranja
- Southeast of Bilje, North from the river, located on an oxbow

Current situation	
Ecological sensitivity (medium, high and very high)	Description
Habitat types	- Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix
	- Moist or wet eutrophic and mesotrophic grassland
	- Mesic grasslands
	- Permanent eutrophic lakes, ponds and pools
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	- Guest house
Leisure racilities	- Restaurant
Other uses	- Fishing
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

Visitor zone (v30)



- County: Osijek-Baranja
- At Kopačevo, close by to Kopački Rit Nature Park, not directly connected to the river

Current situation	
Ecological sensitivity (medium, high and very high)	Description
Habitat types	 Water-fringing beds of tall canes Riparian and gallery woodland, with dominant Alnus, Betula, Populus or Salix Mesic grasslands Moist or wet eutrophic and mesotrophic grassland Permanent eutrophic lakes, ponds and pools
Birds	- No breeding places of the considered bird species known (2018)
Recreational and other uses	
Leisure facilities	 Information Café Parking Route of the provisorily planned Amazon of Europe Bike Trail including resting place
Other uses	- None
Existing conflicts	
Identified conflicts	- Disturbances due to short distance to roads and villages and recreational uses
Suggested measures	
Measures	Description
Facilities	- Connect Amazon of Europe Bike Trail according to general recommendation.
Information	- Awareness raising for visitors concerning nature protection

6 Annex

6.1 Maps

- Charge 1 "Nature sensitivity", scale 1:50.000
- Charge 2 "Conflicts", scale 1:50.000
- Charge 3 "Zones", scale 1:50.000
- Charge 4 "Detailed sensitivity", scale 1:50.000

SERBIA DANUBE MURA-DRAVA-DANUBE Dombovár Nasice Kaposvár HUNGARY ■ Kilometer Keszthely 9 Nagykanizsa CROATIA 2 25 General information core and buffer zones (existing protected areas) "Mura-Drava-Danube"; - Proposed bike trail Biosphere Reserve SLOVENIA Planned 5-country AUSTRIA

6.2 Amazon of Europe Bike Trail

Source: WWF Austria (2016): "Amazon of Europe Bike Trail" - Implementation concept", p.5, Vienna.

